

Proton Driver Error Simulations (Front-End only)

120 parameters scanned

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ALGN2 Parameter TRACKv39 (new parameter)

n ALGN2 name δ_x δ_y δ_z ϕ_x ϕ_y ϕ_z $\delta\phi_{dyn.}$ $\delta\phi_{static}$ $\delta F_{dyn.}$ δF_{static}

- ▶ From RFQ exit to end of 325 MHz section (~ 140 meters)
- ▶ 120 errors simulated with TRACKv39
- ▶ Each error simulated with 400 runs with 3D SC (45 mA)
- ▶ $120 \times 400 = 48000$ runs with TRACKv39

Parameters 01-20

- ▶ 01/ Solenoids $\delta_x = 150 \mu\text{m}$
- ▶ 02/ Solenoids $\delta_x = 300 \mu\text{m}$
- ▶ 03/ Solenoids $\delta_x = 500 \mu\text{m}$
- ▶ 04/ Solenoids $\delta_x = 750 \mu\text{m}$
- ▶ 05/ Solenoids $\delta_x = 1000 \mu\text{m}$

- ▶ 06/ Solenoids $\phi_x = 1 \text{ mrad}$
- ▶ 07/ Solenoids $\phi_x = 2 \text{ mrad}$
- ▶ 08/ Solenoids $\phi_x = 5 \text{ mrad}$
- ▶ 09/ Solenoids $\phi_x = 7 \text{ mrad}$
- ▶ 10/ Solenoids $\phi_x = 10 \text{ mrad}$

- ▶ 11/ Quads $\delta_x = 150 \mu\text{m}$
- ▶ 12/ Quads $\delta_x = 300 \mu\text{m}$
- ▶ 13/ Quads $\delta_x = 500 \mu\text{m}$
- ▶ 14/ Quads $\delta_x = 750 \mu\text{m}$
- ▶ 15/ Quads $\delta_x = 1000 \mu\text{m}$

- ▶ 16/ Quads $\phi_z = 1 \text{ mrad}$
- ▶ 17/ Quads $\phi_z = 2 \text{ mrad}$
- ▶ 18/ Quads $\phi_z = 5 \text{ mrad}$
- ▶ 19/ Quads $\phi_z = 7 \text{ mrad}$
- ▶ 20/ Quads $\phi_z = 10 \text{ mrad}$

Parameters 21-40

- ▶ 21/ Cav. Phase $\delta\phi_{dynamic} = 0.5^\circ$
- ▶ 22/ Cav. Phase $\delta\phi_{dynamic} = 1.0^\circ$
- ▶ 23/ Cav. Phase $\delta\phi_{dynamic} = 1.5^\circ$
- ▶ 24/ Cav. Phase $\delta\phi_{dynamic} = 2.0^\circ$
- ▶ 25/ Cav. Phase $\delta\phi_{dynamic} = 2.5^\circ$
- ▶ 31/ Cav. Field $\delta F_{dynamic} = 0.5 \%$
- ▶ 32/ Cav. Field $\delta F_{dynamic} = 1.0 \%$
- ▶ 33/ Cav. Field $\delta F_{dynamic} = 1.5 \%$
- ▶ 34/ Cav. Field $\delta F_{dynamic} = 2.0 \%$
- ▶ 35/ Cav. Field $\delta F_{dynamic} = 2.5 \%$

- ▶ 26/ Cav. Phase $\delta\phi_{static} = 0.5^\circ$
- ▶ 27/ Cav. Phase $\delta\phi_{static} = 1.0^\circ$
- ▶ 28/ Cav. Phase $\delta\phi_{static} = 1.5^\circ$
- ▶ 29/ Cav. Phase $\delta\phi_{static} = 2.0^\circ$
- ▶ 30/ Cav. Phase $\delta\phi_{static} = 2.5^\circ$
- ▶ 36/ Cav. Field $\delta F_{static} = 0.5 \%$
- ▶ 37/ Cav. Field $\delta F_{static} = 1.0 \%$
- ▶ 38/ Cav. Field $\delta F_{static} = 1.5 \%$
- ▶ 39/ Cav. Field $\delta F_{static} = 2.0 \%$
- ▶ 40/ Cav. Field $\delta F_{static} = 2.5 \%$

Parameters 41-60

- ▶ 41/ Cav. $\delta_x = 150 \mu\text{m}$
- ▶ 42/ Cav. $\delta_x = 300 \mu\text{m}$
- ▶ 43/ Cav. $\delta_x = 500 \mu\text{m}$
- ▶ 44/ Cav. $\delta_x = 750 \mu\text{m}$
- ▶ 45/ Cav. $\delta_x = 1000 \mu\text{m}$

- ▶ 46/ Cav. $\delta_x = \delta_y = 150 \mu\text{m}$
- ▶ 47/ Cav. $\delta_x = \delta_y = 300 \mu\text{m}$
- ▶ 48/ Cav. $\delta_x = \delta_y = 500 \mu\text{m}$
- ▶ 49/ Cav. $\delta_x = \delta_y = 750 \mu\text{m}$
- ▶ 50/ Cav. $\delta_x = \delta_y = 1000 \mu\text{m}$

- ▶ 51/ Cav. $\delta_z = 150 \mu\text{m}$
- ▶ 52/ Cav. $\delta_z = 300 \mu\text{m}$
- ▶ 53/ Cav. $\delta_z = 500 \mu\text{m}$
- ▶ 54/ Cav. $\delta_z = 750 \mu\text{m}$
- ▶ 55/ Cav. $\delta_z = 1000 \mu\text{m}$

- ▶ 56/ Cav. $\phi_x = 1 \text{ mrad}$
- ▶ 57/ Cav. $\phi_x = 2 \text{ mrad}$
- ▶ 58/ Cav. $\phi_x = 5 \text{ mrad}$
- ▶ 59/ Cav. $\phi_x = 7 \text{ mrad}$
- ▶ 60/ Cav. $\phi_x = 10 \text{ mrad}$

Parameters 61-80

- ▶ 61/ Cav. $\phi_x = \phi_y = 1$ mrad
- ▶ 62/ Cav. $\phi_x = \phi_y = 2$ mrad
- ▶ 63/ Cav. $\phi_x = \phi_y = 5$ mrad
- ▶ 64/ Cav. $\phi_x = \phi_y = 7$ mrad
- ▶ 65/ Cav. $\phi_x = \phi_y = 10$ mrad

- ▶ 66/ Cav. $\phi_z = 1$ mrad
- ▶ 67/ Cav. $\phi_z = 2$ mrad
- ▶ 68/ Cav. $\phi_z = 5$ mrad
- ▶ 69/ Cav. $\phi_z = 7$ mrad
- ▶ 70/ Cav. $\phi_z = 10$ mrad

- ▶ 71/ Sol. $\delta_x = \delta_y = 150$ μm
- ▶ 72/ Sol. $\delta_x = \delta_y = 300$ μm
- ▶ 73/ Sol. $\delta_x = \delta_y = 500$ μm
- ▶ 74/ Sol. $\delta_x = \delta_y = 750$ μm
- ▶ 75/ Sol. $\delta_x = \delta_y = 1000$ μm

- ▶ 76/ Sol. $\delta_z = 150$ μm
- ▶ 77/ Sol. $\delta_z = 300$ μm
- ▶ 78/ Sol. $\delta_z = 500$ μm
- ▶ 79/ Sol. $\delta_z = 750$ μm
- ▶ 80/ Sol. $\delta_z = 1000$ μm

Parameters 81-100

- ▶ 81/ Sol. $\phi_x = \phi_y = 1$ mrad
- ▶ 82/ Sol. $\phi_x = \phi_y = 2$ mrad
- ▶ 83/ Sol. $\phi_x = \phi_y = 5$ mrad
- ▶ 84/ Sol. $\phi_x = \phi_y = 7$ mrad
- ▶ 85/ Sol. $\phi_x = \phi_y = 10$ mrad
- ▶ 86/ Sol. Field $\delta F_{dynamic} = 0.5$ %
- ▶ 87/ Sol. Field $\delta F_{dynamic} = 1.0$ %
- ▶ 88/ Sol. Field $\delta F_{dynamic} = 1.5$ %
- ▶ 89/ Sol. Field $\delta F_{dynamic} = 2.0$ %
- ▶ 90/ Sol. Field $\delta F_{dynamic} = 2.5$ %
- ▶ 91/ Sol. Field $\delta F_{static} = 0.5$ %
- ▶ 92/ Sol. Field $\delta F_{static} = 1.0$ %
- ▶ 93/ Sol. Field $\delta F_{static} = 1.5$ %
- ▶ 94/ Sol. Field $\delta F_{static} = 2.0$ %
- ▶ 95/ Sol. Field $\delta F_{static} = 2.5$ %
- ▶ 96/ Quads $\delta_x = \delta_y = 150$ μm
- ▶ 97/ Quads $\delta_x = \delta_y = 300$ μm
- ▶ 98/ Quad $\delta_x = \delta_y = 500$ μm
- ▶ 99/ Quads $\delta_x = \delta_y = 750$ μm
- ▶ 100/ Quads $\delta_x = \delta_y = 1000$ μm

Parameters 101-120

- ▶ 101/ Quads $\delta_z = 150 \mu\text{m}$
- ▶ 102/ Quads $\delta_z = 300 \mu\text{m}$
- ▶ 103/ Quads $\delta_z = 500 \mu\text{m}$
- ▶ 104/ Quads $\delta_z = 750 \mu\text{m}$
- ▶ 105/ Quads $\delta_z = 1000 \mu\text{m}$

- ▶ 106/ Quads $\phi_x = 1 \text{ mrad}$
- ▶ 107/ Quads $\phi_x = 2 \text{ mrad}$
- ▶ 108/ Quads $\phi_x = 5 \text{ mrad}$
- ▶ 109/ Quads $\phi_x = 7 \text{ mrad}$
- ▶ 110/ Quads $\phi_x = 10 \text{ mrad}$

- ▶ 111/ Quads $\phi_x = \phi_y = 1 \text{ mrad}$
- ▶ 112/ Quads $\phi_x = \phi_y = 2 \text{ mrad}$
- ▶ 113/ Quads $\phi_x = \phi_y = 3 \text{ mrad}$
- ▶ 114/ Quads $\phi_x = \phi_y = 7 \text{ mrad}$
- ▶ 115/ Quads $\phi_x = \phi_y = 10 \text{ mrad}$

- ▶ 116/ Quads Field $\delta F_{dynamic} = 0.5 \%$
- ▶ 117/ Quads Field $\delta F_{dynamic} = 1.0 \%$
- ▶ 118/ Quads Field $\delta F_{dynamic} = 1.5 \%$
- ▶ 119/ Quads Field $\delta F_{dynamic} = 2.0 \%$
- ▶ 120/ Quads Field $\delta F_{dynamic} = 2.5 \%$

(01) Solenoids $\delta_x = 150 \mu\text{m}$

Figure: RMS Emittance X

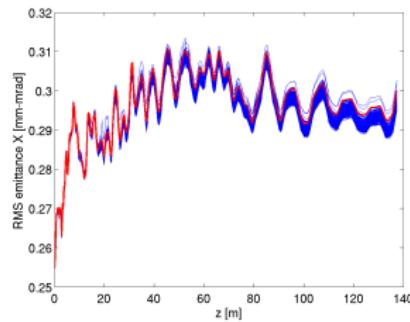


Figure: RMS Emittance Y

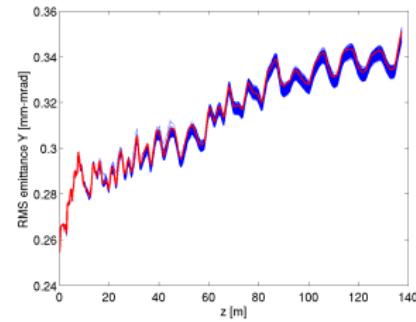


Figure: RMS Emittance Z

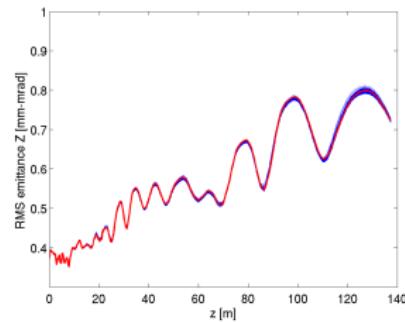
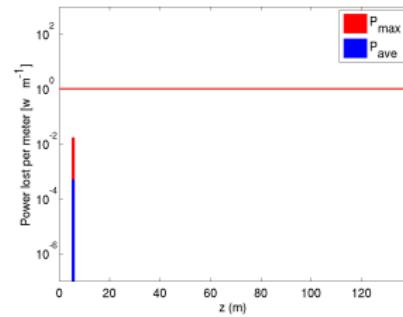


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(02) Solenoids $\delta_x = 300 \mu\text{m}$

Figure: RMS Emittance X

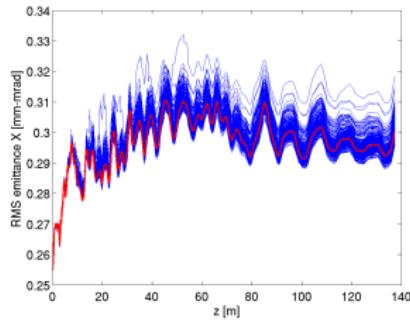


Figure: RMS Emittance Y

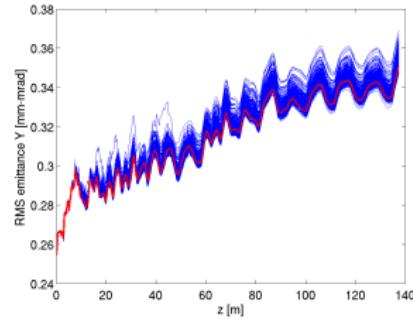


Figure: RMS Emittance Z

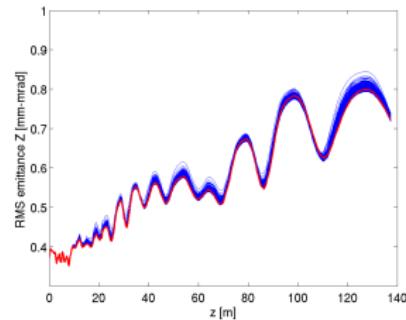
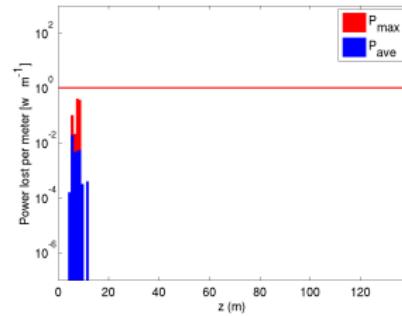


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(03) Solenoids $\delta_x = 500 \mu\text{m}$

Figure: RMS Emittance X

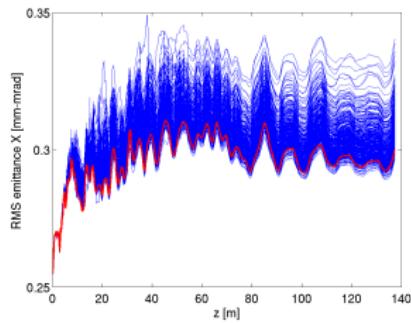


Figure: RMS Emittance Y

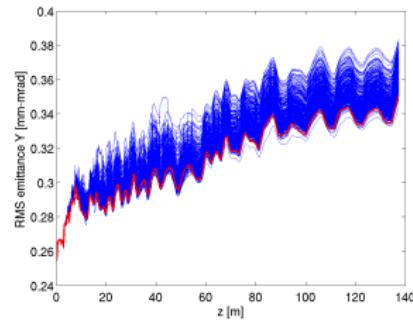


Figure: RMS Emittance Z

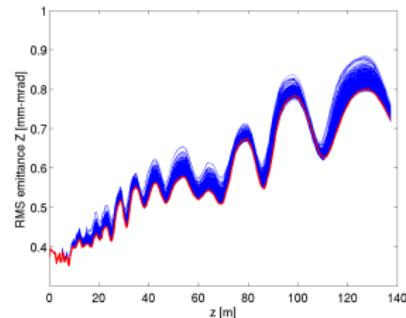
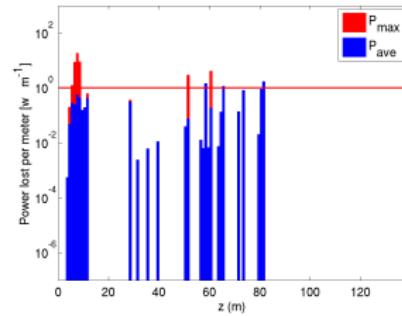


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(04) Solenoids $\delta_x = 750 \mu\text{m}$

Figure: RMS Emittance X

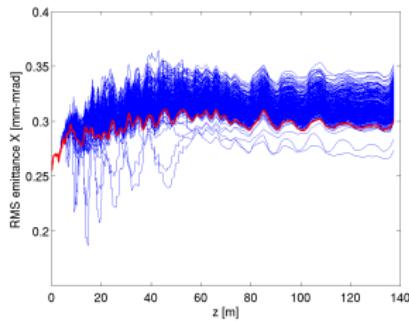


Figure: RMS Emittance Y

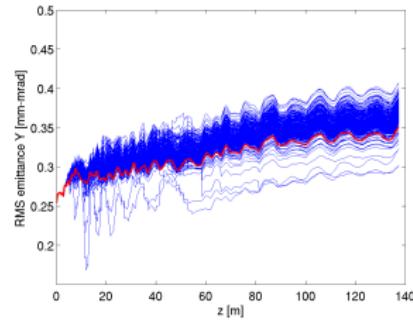


Figure: RMS Emittance Z

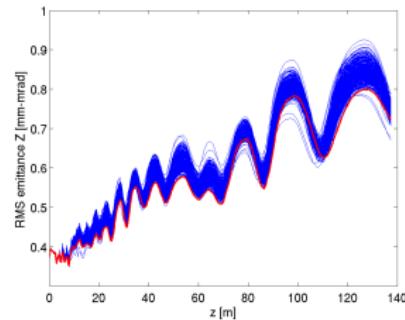
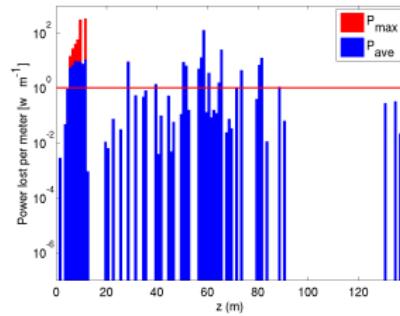


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(05) Solenoids $\delta_x = 1000 \mu\text{m}$

Figure: RMS Emittance X

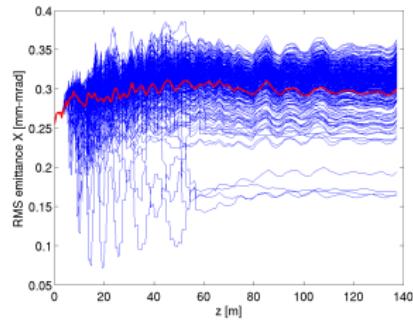


Figure: RMS Emittance Y

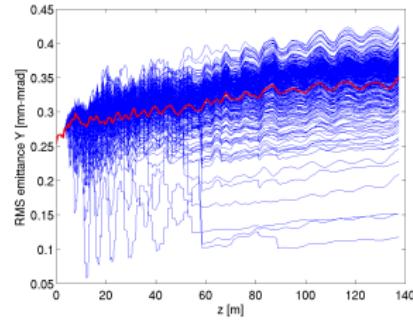


Figure: RMS Emittance Z

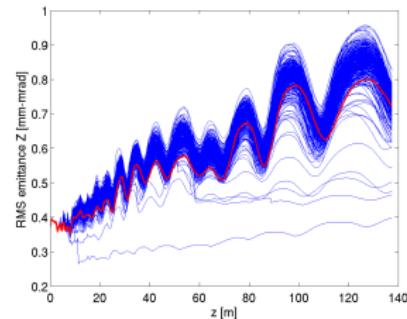
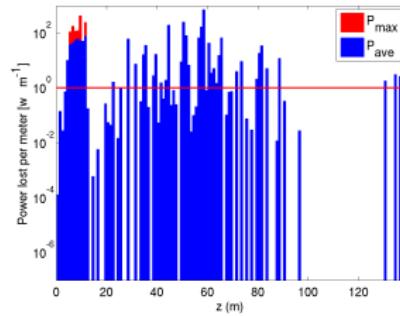


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(06) Solenoids $\phi_x = 1$ mrad

Figure: RMS Emittance X

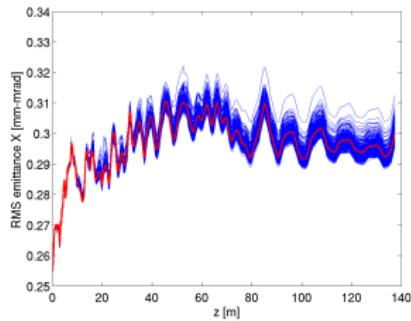


Figure: RMS Emittance Y

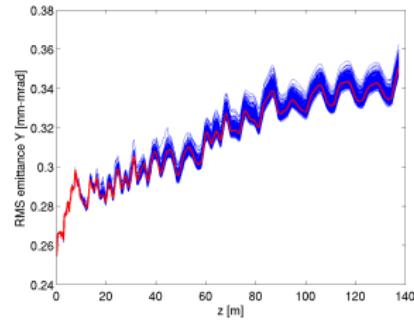


Figure: RMS Emittance Z

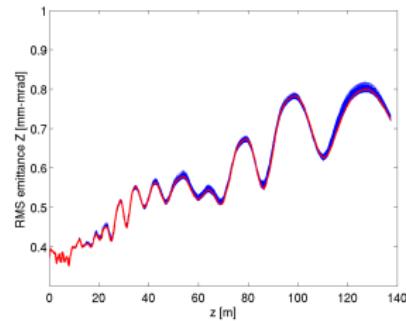
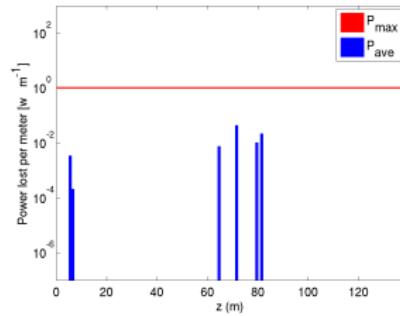


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(07) Solenoids $\phi_x = 2$ mrad

Figure: RMS Emittance X

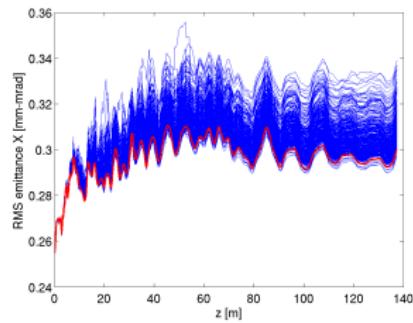


Figure: RMS Emittance Y

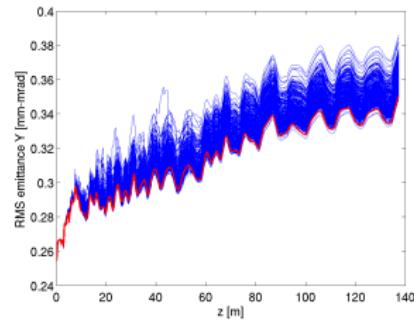


Figure: RMS Emittance z

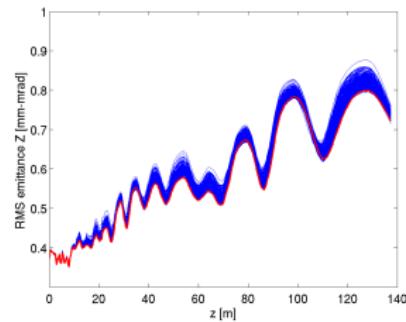
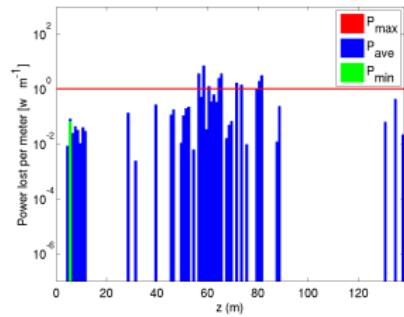


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(08) Solenoids $\phi_x = 5$ mrad

Figure: RMS Emittance X

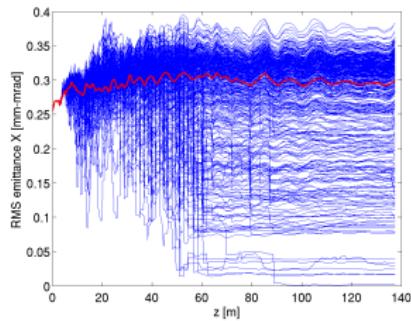


Figure: RMS Emittance Y

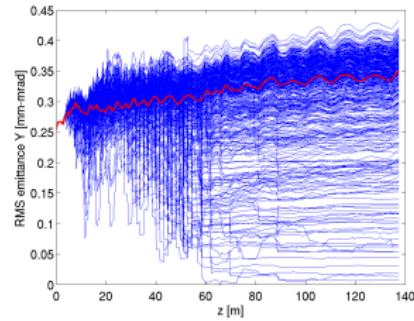


Figure: RMS Emittance Z

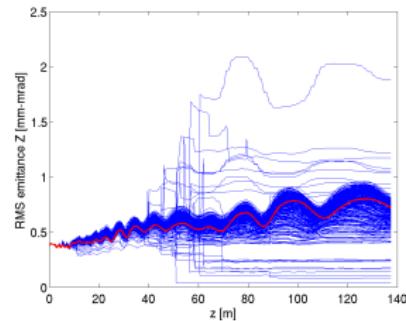
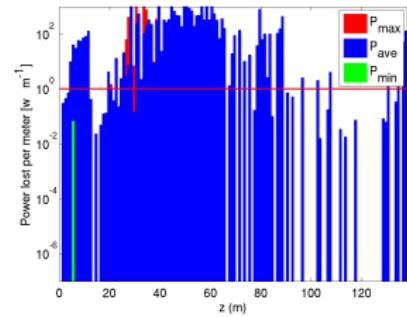


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(09) Solenoids $\phi_x = 7$ mrad

Figure: RMS Emittance X

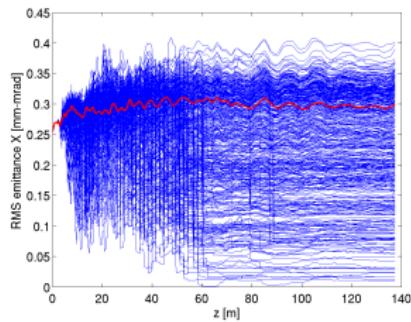


Figure: RMS Emittance Y

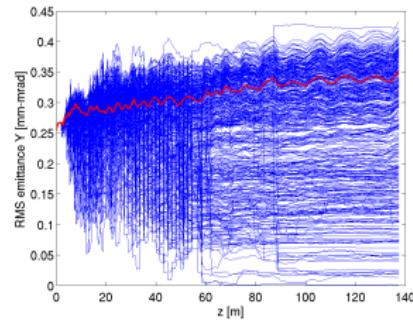


Figure: RMS Emittance Z

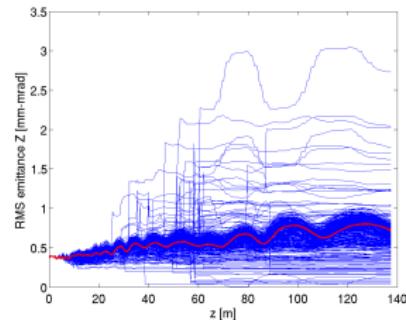
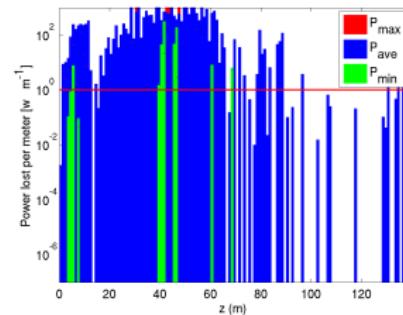


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(10) Solenoids $\phi_x = 10$ mrad

Figure: RMS Emittance X

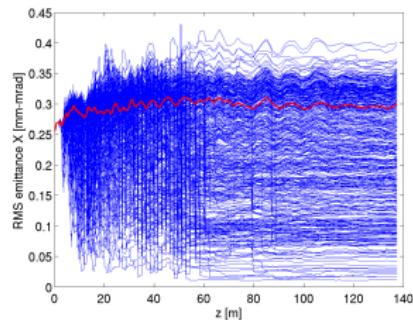


Figure: RMS Emittance Y

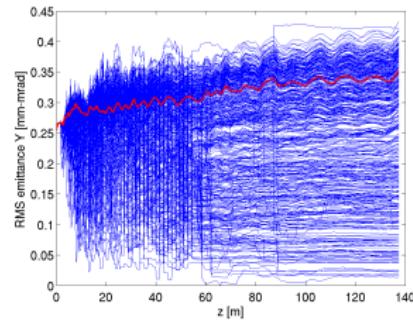


Figure: RMS Emittance Z

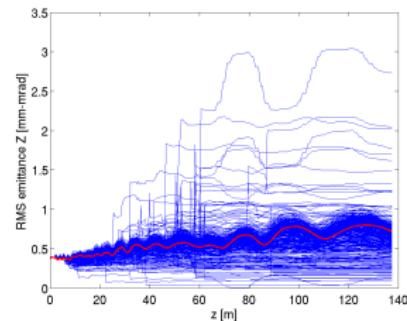
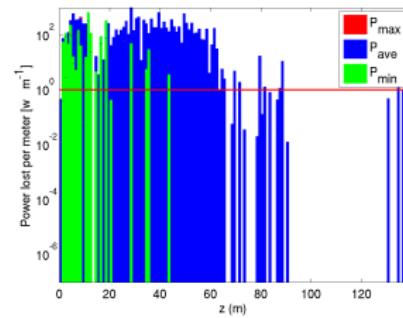


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(11) Quads $\delta_x = 150 \mu\text{m}$

Figure: RMS Emittance X

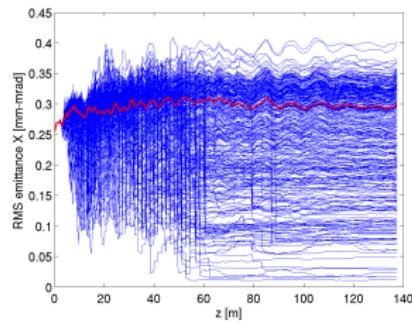


Figure: RMS Emittance Y

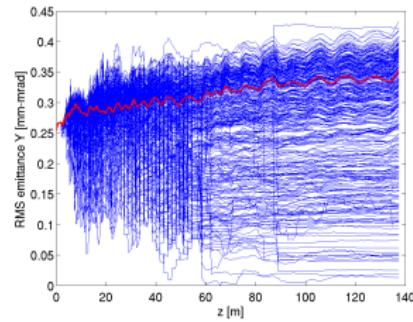


Figure: RMS Emittance Z

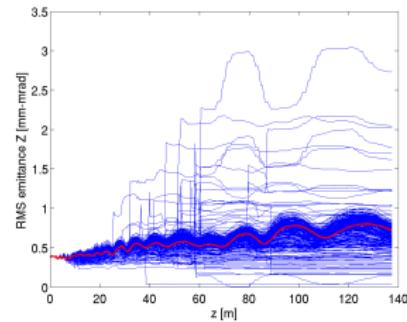
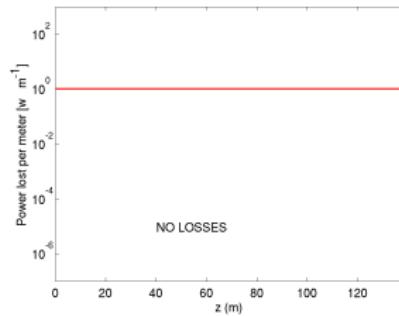


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(12) Quads $\delta_x = 300 \mu\text{m}$

Figure: RMS Emittance X

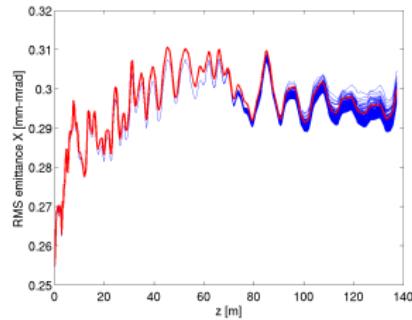


Figure: RMS Emittance Y

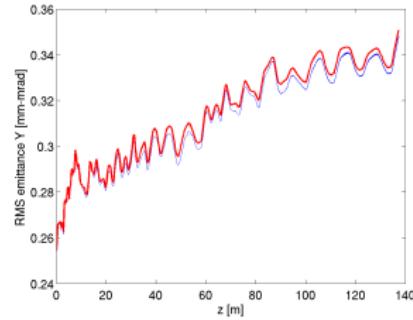


Figure: RMS Emittance Z

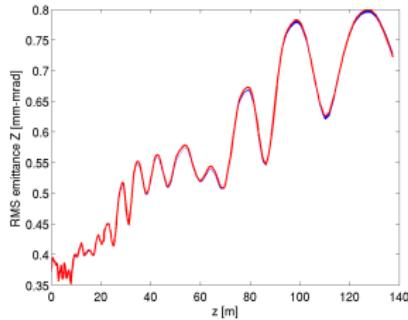
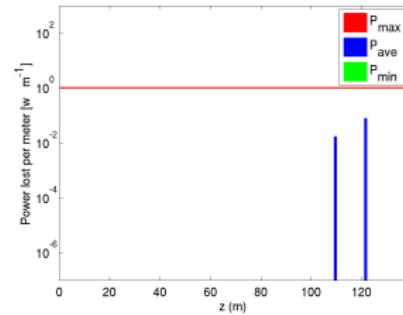


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(13) Quads $\delta_x = 500 \mu\text{m}$

Figure: RMS Emittance X

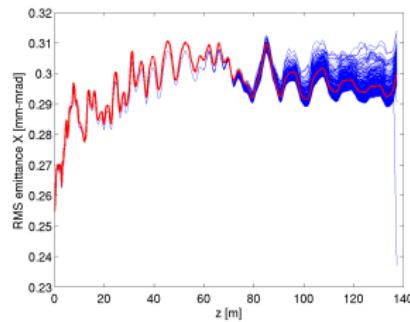


Figure: RMS Emittance Y

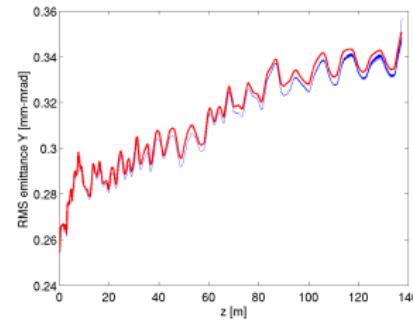


Figure: RMS Emittance Z

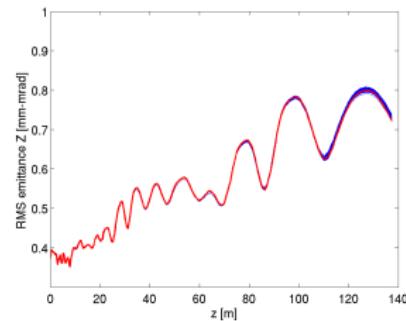
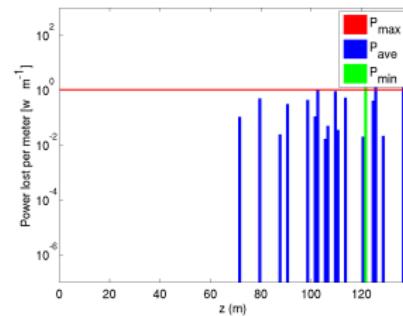


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(14) Quads $\delta_x = 750 \mu\text{m}$

Figure: RMS Emittance X

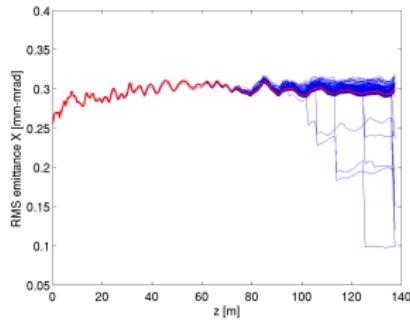


Figure: RMS Emittance Y

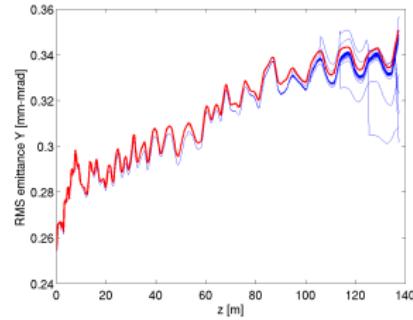


Figure: RMS Emittance Z

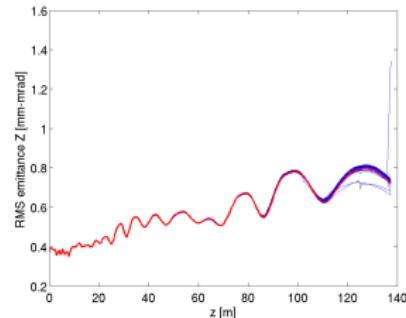
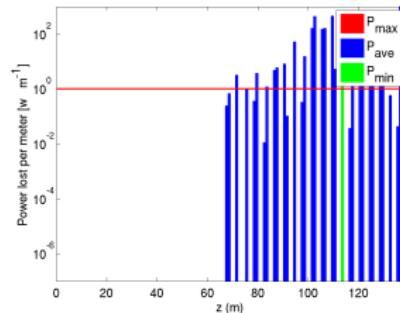


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(15) Quads $\delta_x = 1000 \mu\text{m}$

Figure: RMS Emittance X

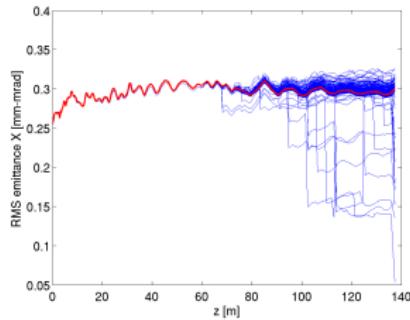


Figure: RMS Emittance Y

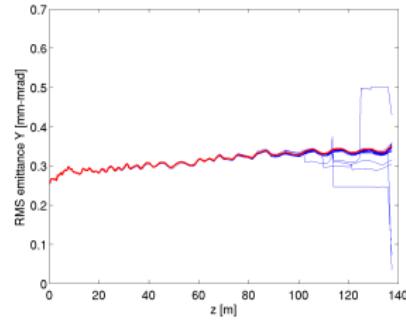


Figure: RMS Emittance Z

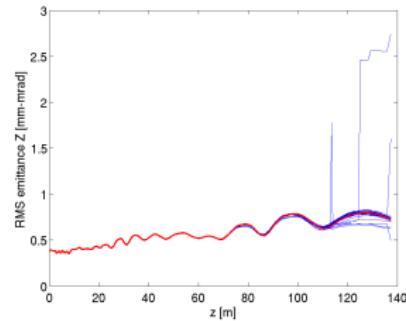
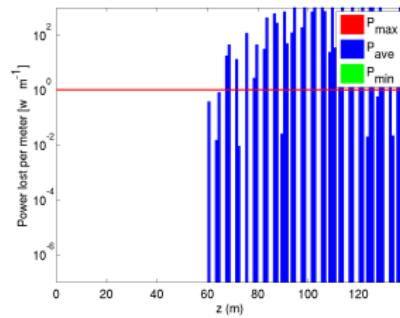


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(16) Quads $\phi_z = 1$ mrad

Figure: RMS Emittance X

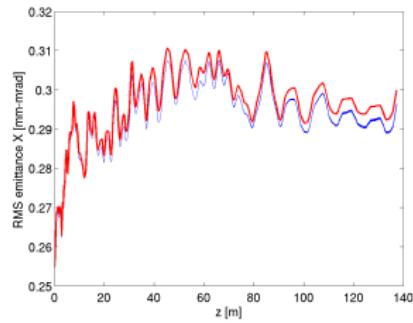


Figure: RMS Emittance Y

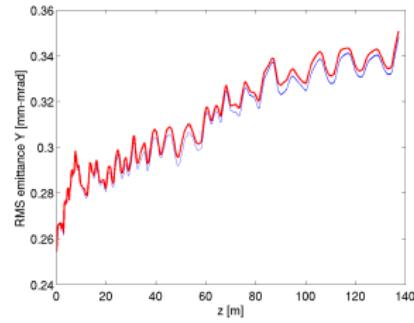


Figure: RMS Emittance Z

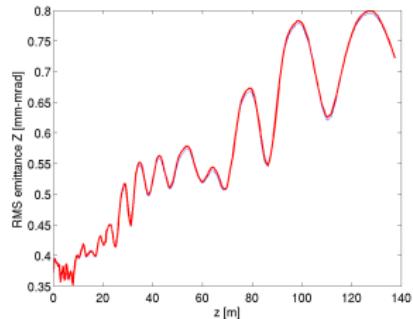
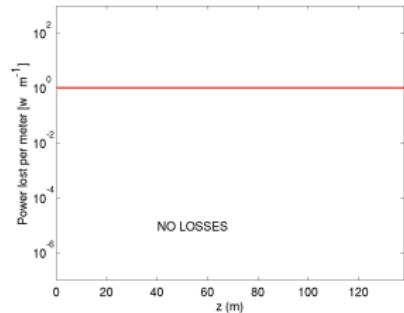


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(17) Quads $\phi_z = 2$ mrad

Figure: RMS Emittance X

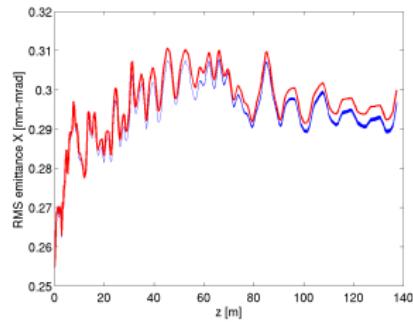


Figure: RMS Emittance Y

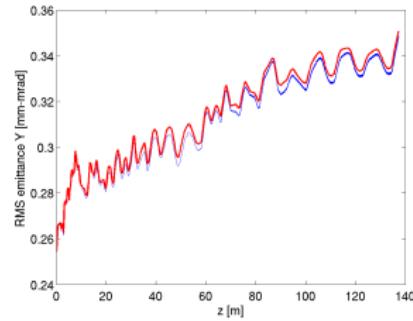


Figure: RMS Emittance Z

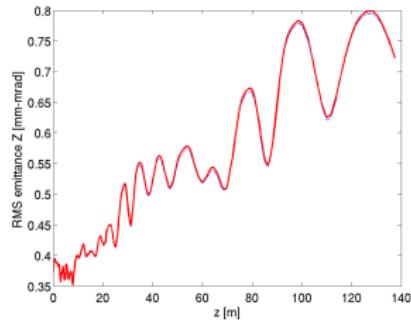
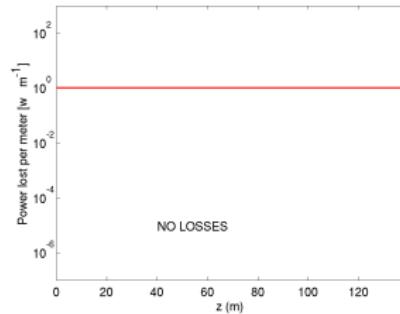


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(18) Quads $\phi_z = 5$ mrad

Figure: RMS Emittance X

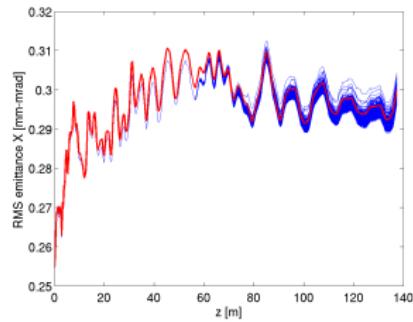


Figure: RMS Emittance Y

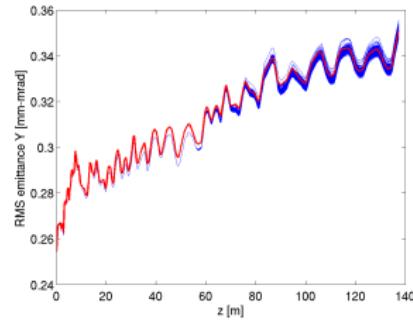


Figure: RMS Emittance Z

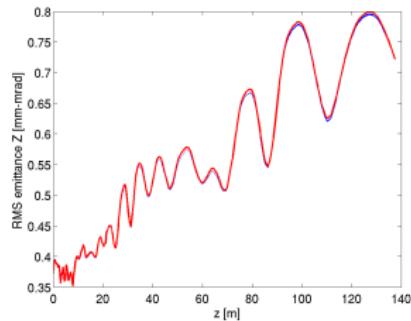
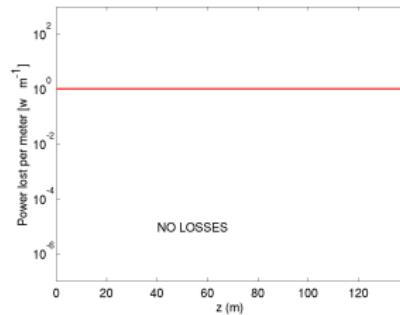


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(19) Quads $\phi_z = 7$ mrad

Figure: RMS Emittance X

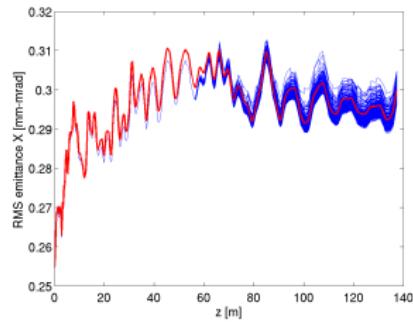


Figure: RMS Emittance Y

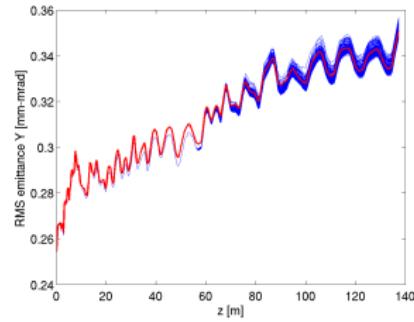


Figure: RMS Emittance Z

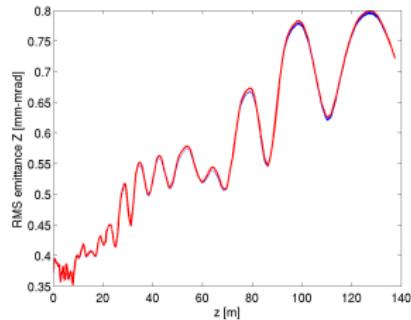
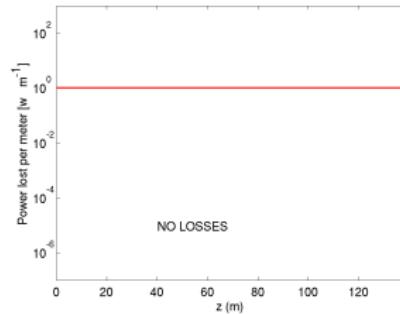


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(20) Quads $\phi_z = 10$ mrad

Figure: RMS Emittance X

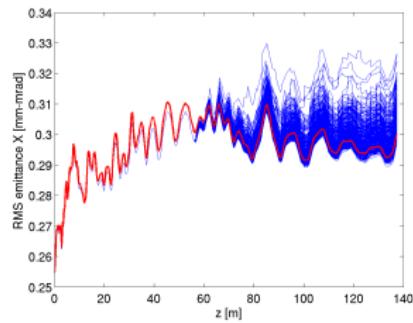


Figure: RMS Emittance Y

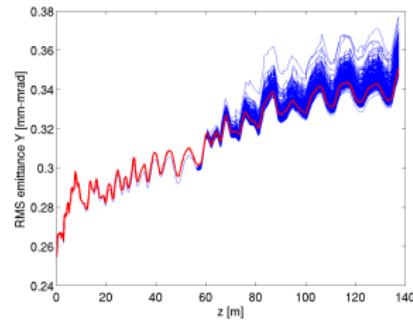


Figure: RMS Emittance Z

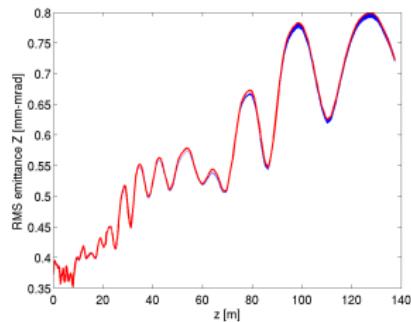
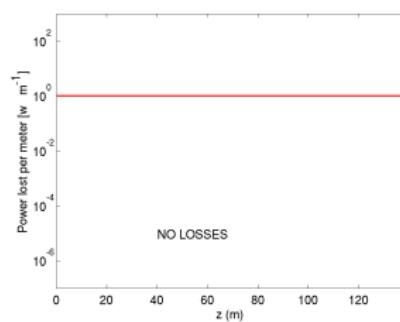


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(21) Cavities Phase $\delta\phi_{dynamic} = 0.5$ deg

Figure: RMS Emittance X

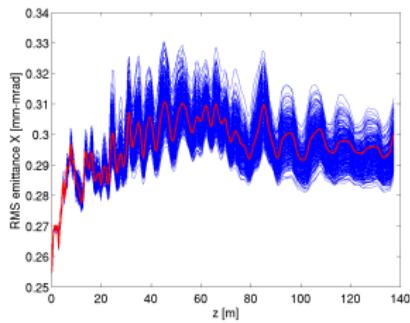


Figure: RMS Emittance Y

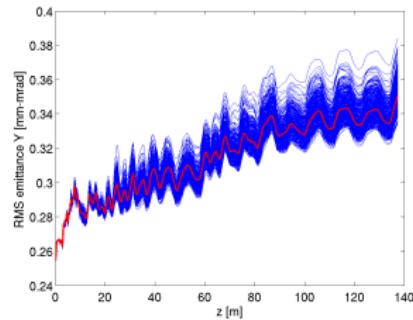


Figure: RMS Emittance Z

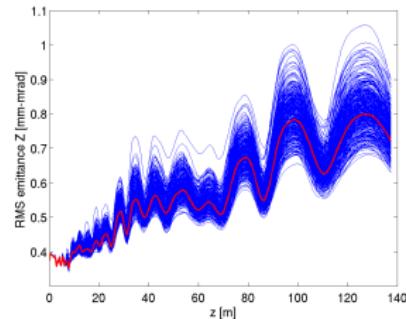
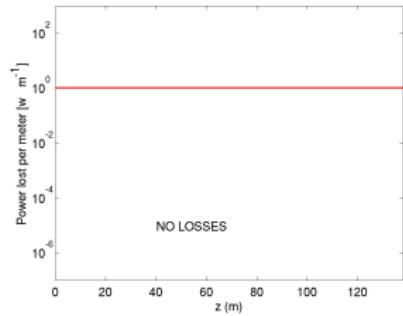


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(22) Cavities Phase $\delta\phi_{dynamic} = 1.0$ deg

Figure: RMS Emittance X

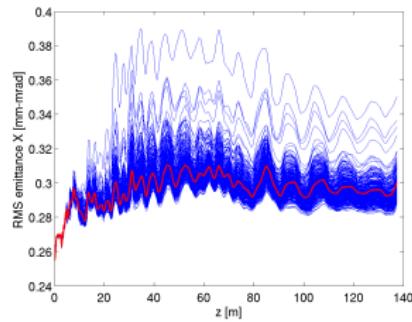


Figure: RMS Emittance Y

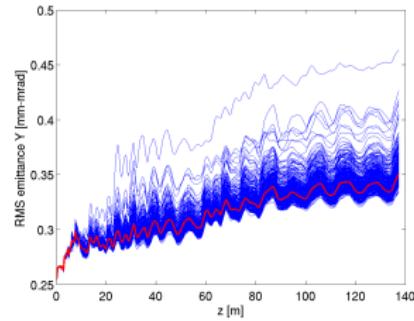


Figure: RMS Emittance Z

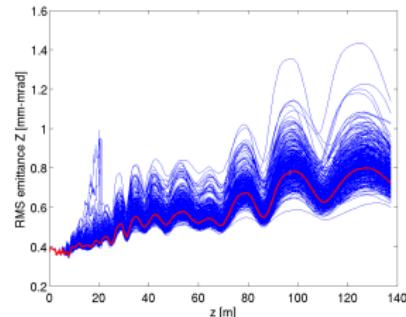
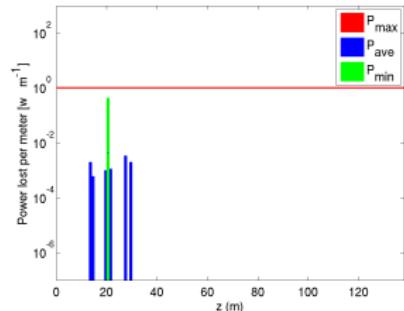


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(23) Cavities Phase $\delta\phi_{dynamic} = 1.5$ deg

Figure: RMS Emittance X

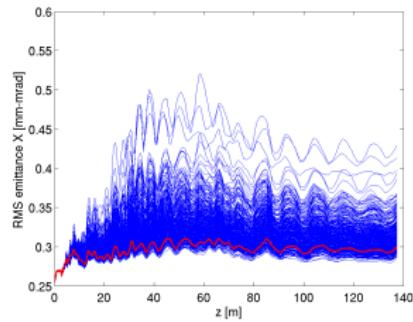


Figure: RMS Emittance Y

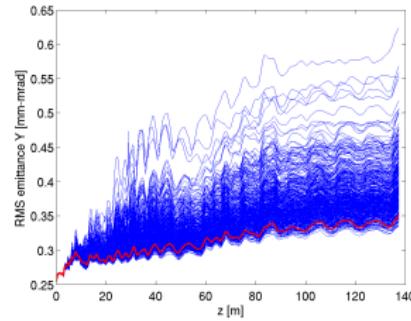


Figure: RMS Emittance Z

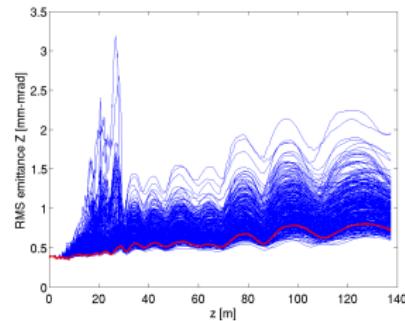
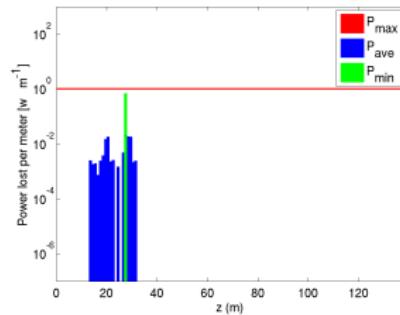


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(24) Cavities Phase $\delta\phi_{dynamic} = 2.0$ deg

Figure: RMS Emittance X

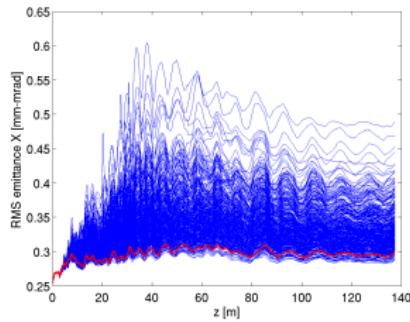


Figure: RMS Emittance Y

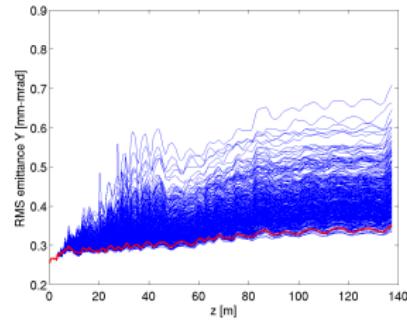


Figure: RMS Emittance Z

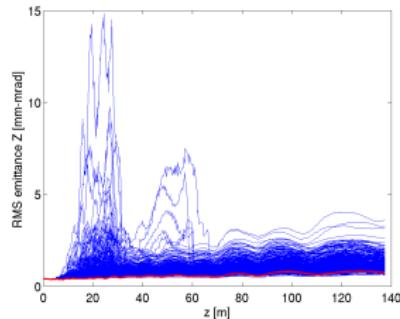
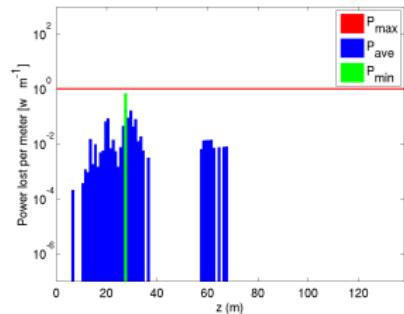


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(25) Cavities Phase $\delta\phi_{dynamic} = 2.5$ deg

Figure: RMS Emittance X

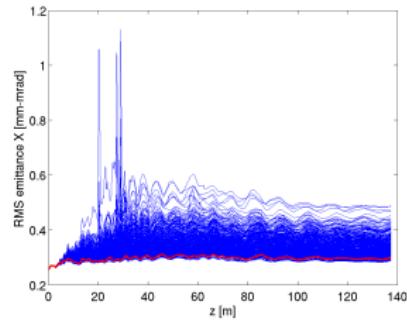


Figure: RMS Emittance Y

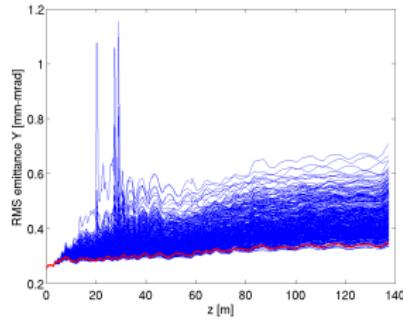


Figure: RMS Emittance Z

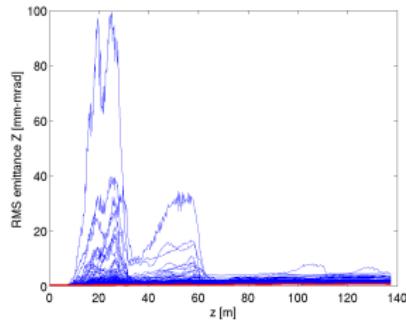
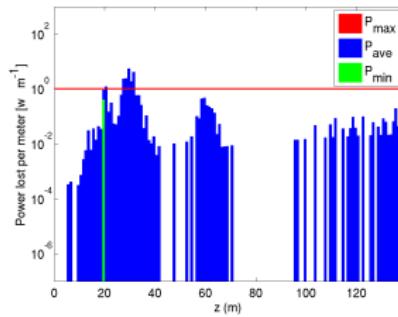


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(26) Cavities Phase $\delta\phi_{static} = 0.5$ deg

Figure: RMS Emittance X

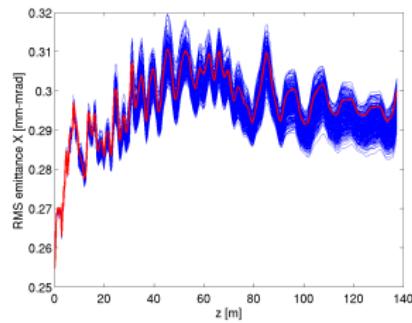


Figure: RMS Emittance Y

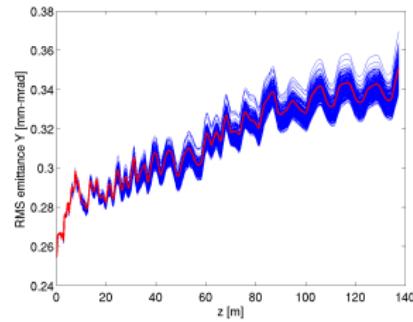


Figure: RMS Emittance Z

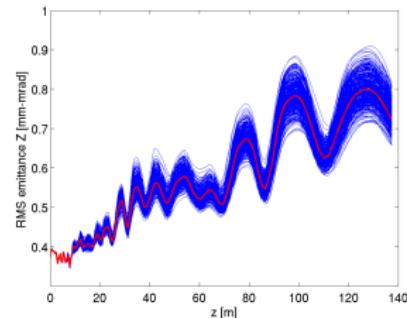
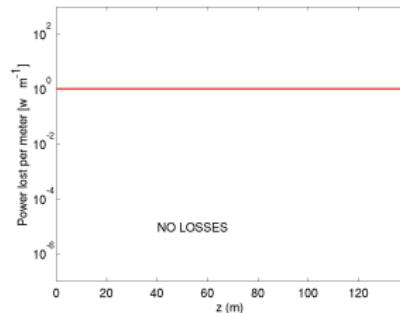


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(27) Cavities Phase $\delta\phi_{static} = 1.0$ deg

Figure: RMS Emittance X

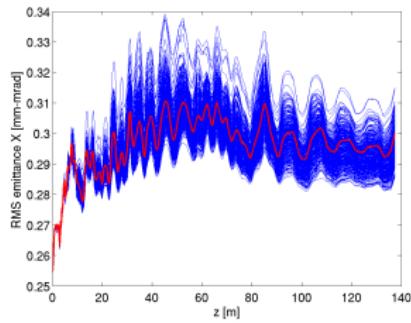


Figure: RMS Emittance Y

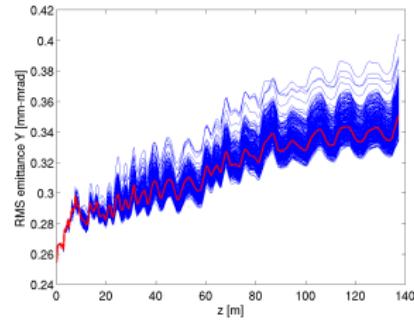


Figure: RMS Emittance z

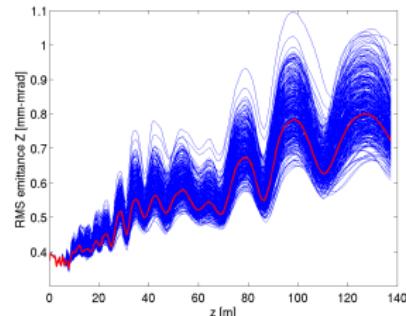
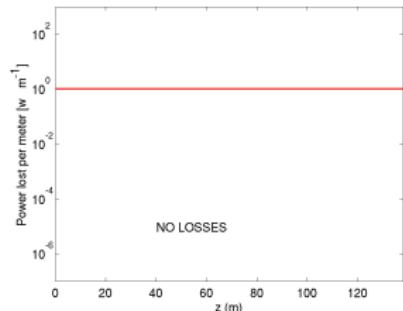


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(28) Cavities Phase $\delta\phi_{static} = 1.5$ deg

Figure: RMS Emittance X

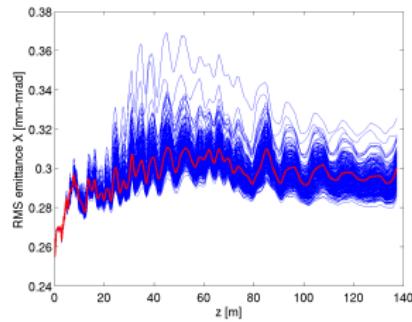


Figure: RMS Emittance Y

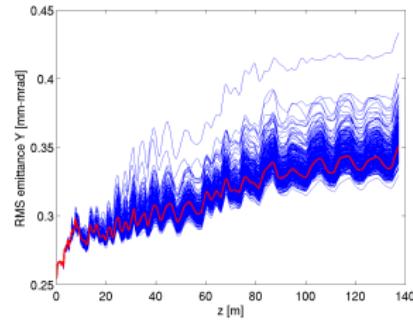


Figure: RMS Emittance Z

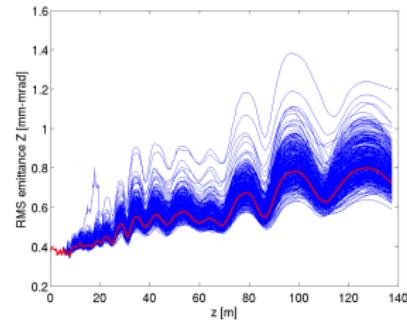
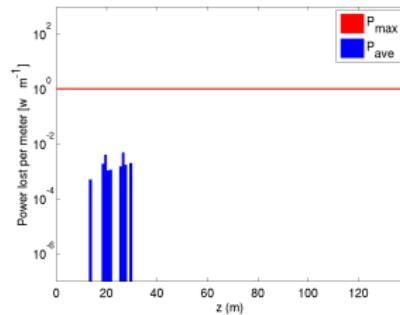


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(29) Cavities Phase $\delta\phi_{static} = 2.0$ deg

Figure: RMS Emittance X

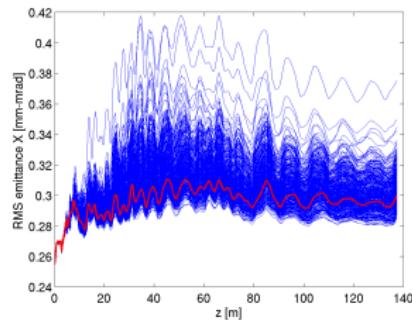


Figure: RMS Emittance Y

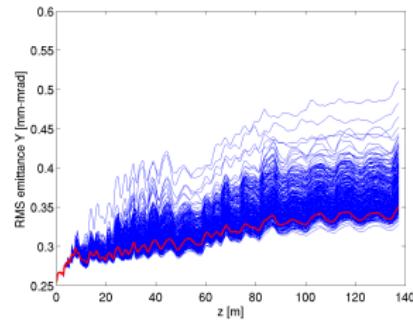


Figure: RMS Emittance Z

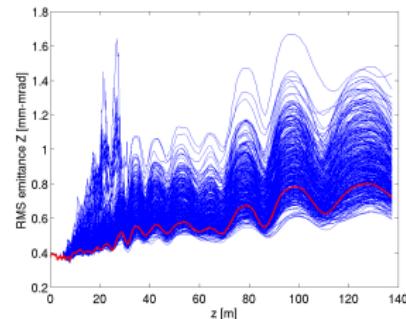
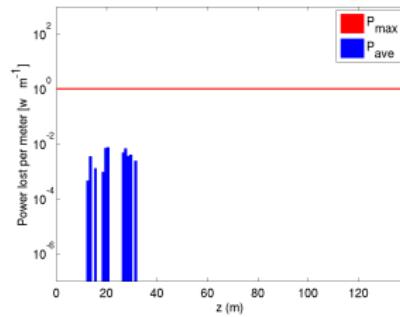


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(30) Cavities Phase $\delta\phi_{static} = 2.5$ deg

Figure: RMS Emittance X

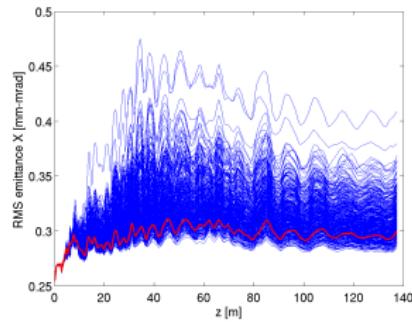


Figure: RMS Emittance Y

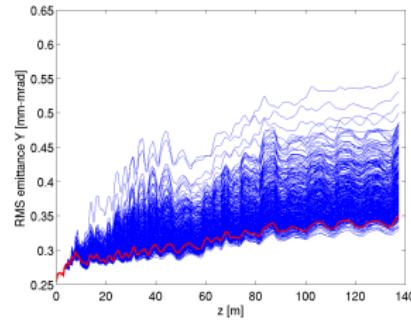


Figure: RMS Emittance Z

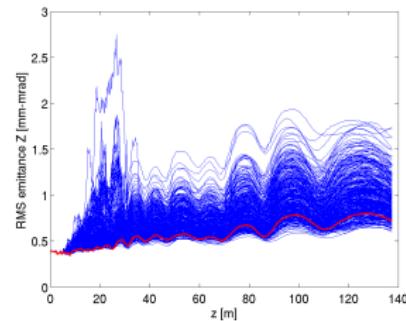
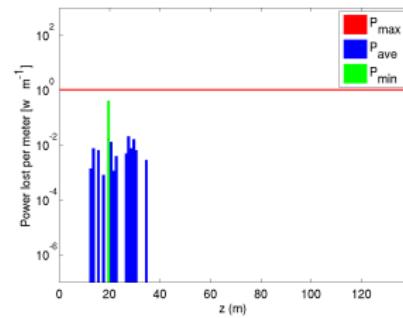


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(31) Cavities Field $\delta F_{dynamic} = 0.5 \%$

Figure: RMS Emittance X

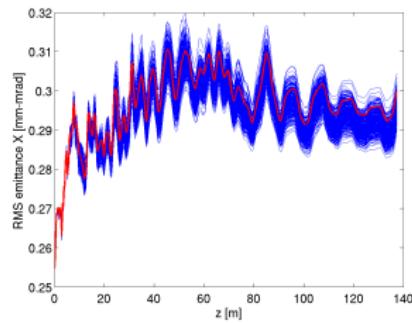


Figure: RMS Emittance Y

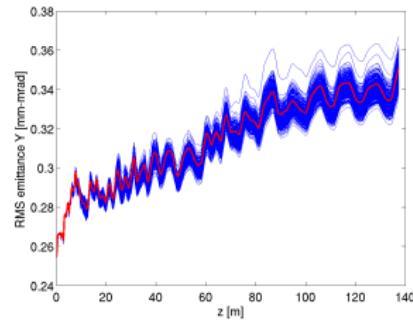


Figure: RMS Emittance Z

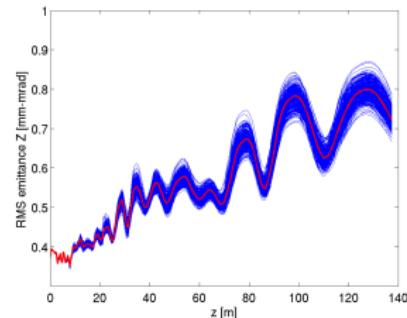
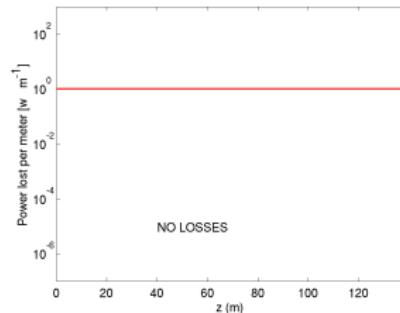


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(32) Cavities Field $\delta F_{dynamic} = 1.0 \%$

Figure: RMS Emittance X

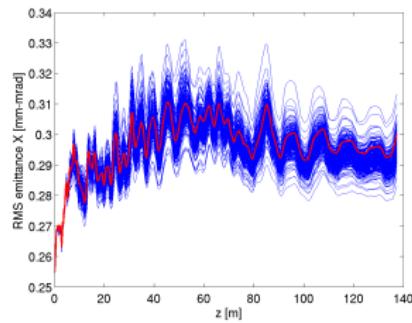


Figure: RMS Emittance Y

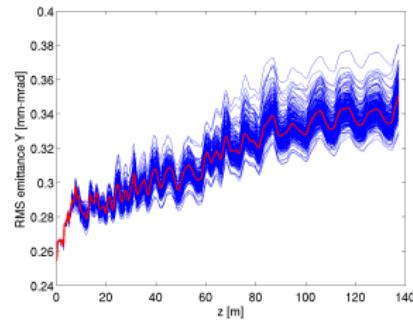


Figure: RMS Emittance Z

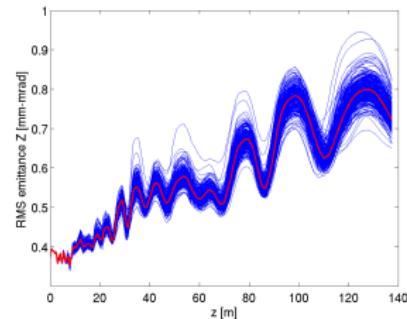
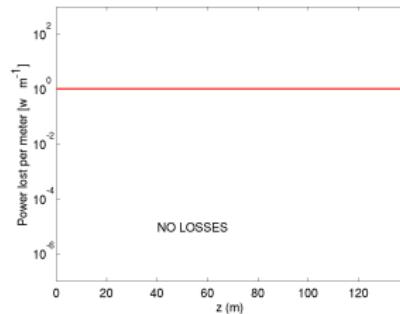


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(33) Cavities Field $\delta F_{dynamic} = 1.5 \%$

Figure: RMS Emittance X

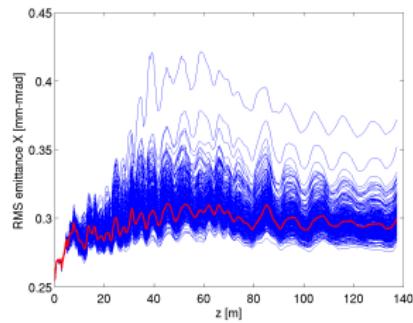


Figure: RMS Emittance Y

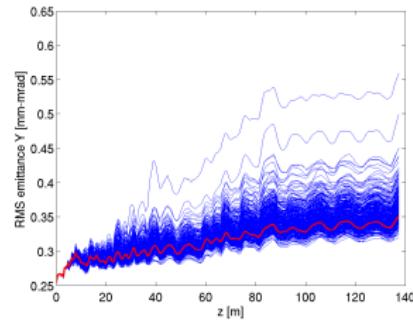


Figure: RMS Emittance Z

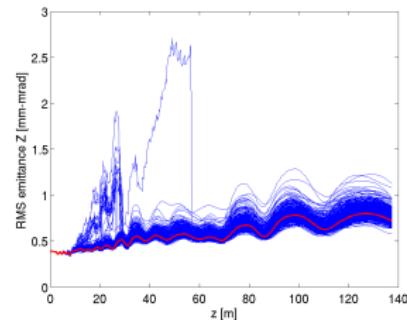
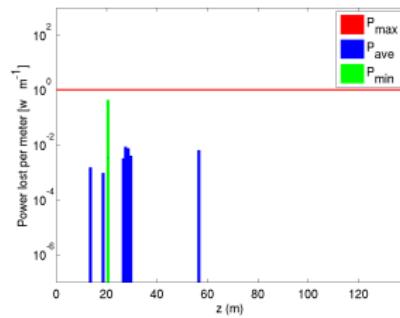


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(34) Cavities Field $\delta F_{dynamic} = 2.0 \%$

Figure: RMS Emittance X

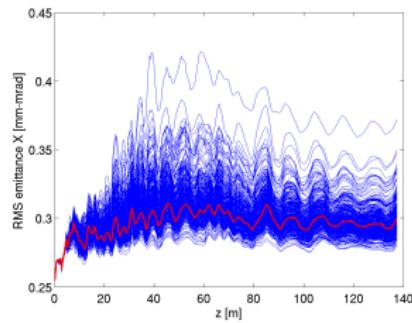


Figure: RMS Emittance Y

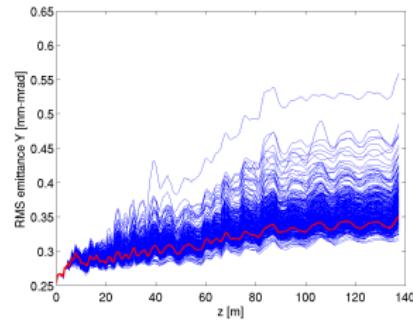


Figure: RMS Emittance Z

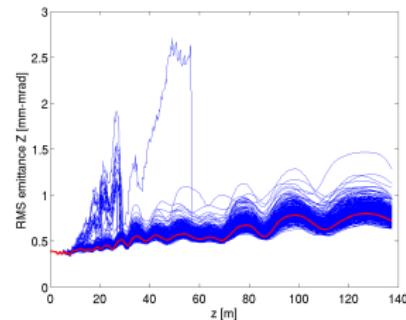
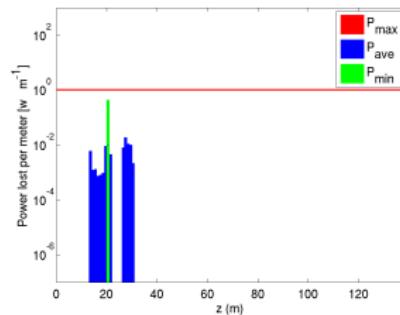


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(35) Cavities Field $\delta F_{dynamic} = 2.5 \%$

Figure: RMS Emittance X

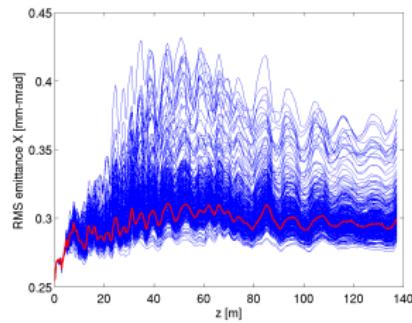


Figure: RMS Emittance Y

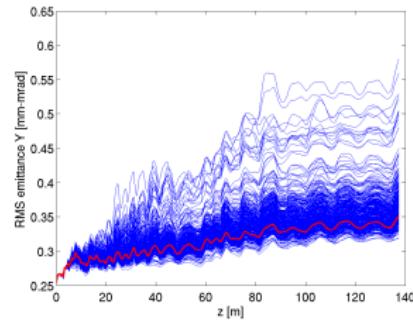


Figure: RMS Emittance Z

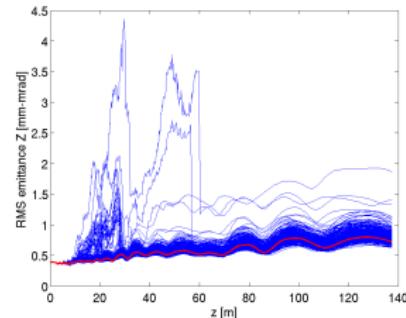
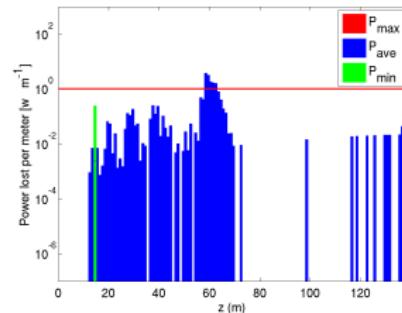


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(36) Cavities Field $\delta F_{static} = 0.5 \%$

Figure: RMS Emittance X

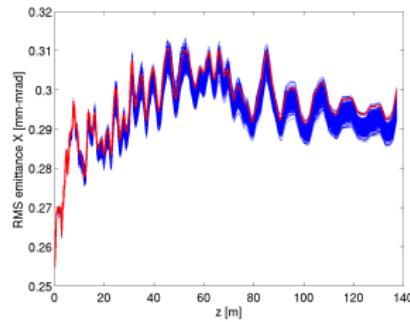


Figure: RMS Emittance Y

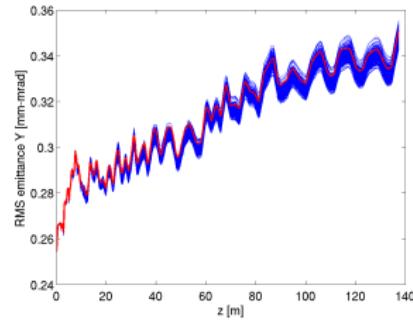


Figure: RMS Emittance Z

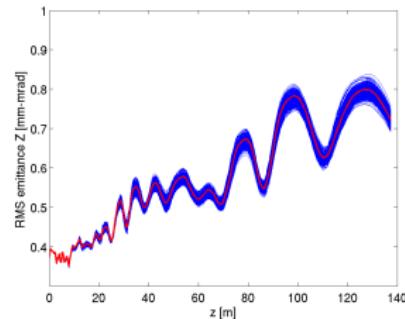
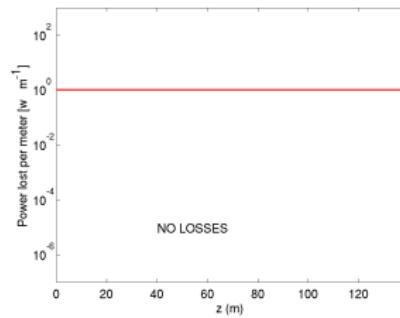


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(37) Cavities Field $\delta F_{static} = 1.0 \%$

Figure: RMS Emittance X

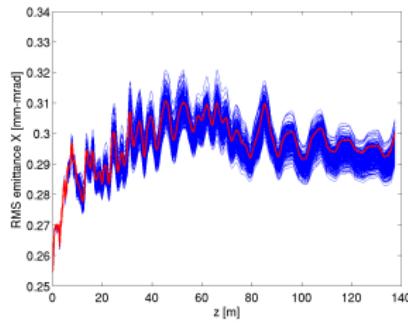


Figure: RMS Emittance Y

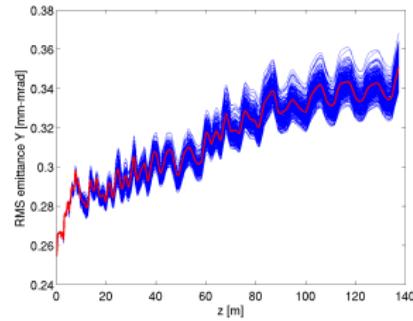


Figure: RMS Emittance Z

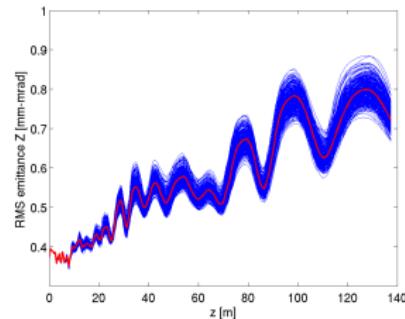
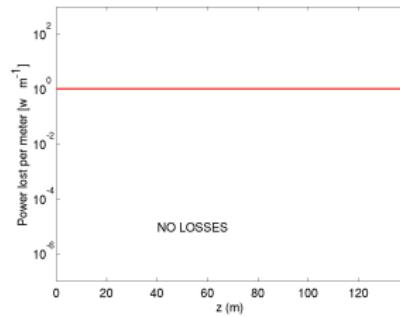


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(38) Cavities Field $\delta F_{static} = 1.5 \%$

Figure: RMS Emittance X

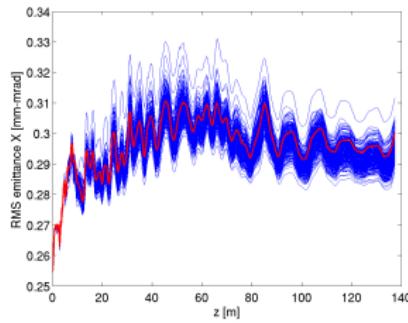


Figure: RMS Emittance Y

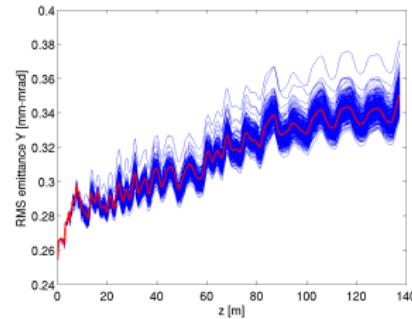


Figure: RMS Emittance Z

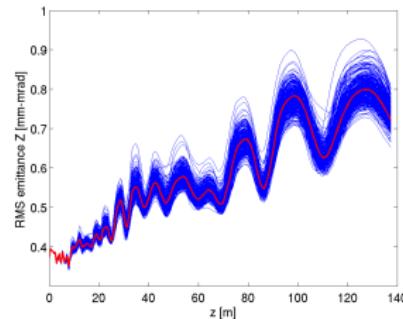
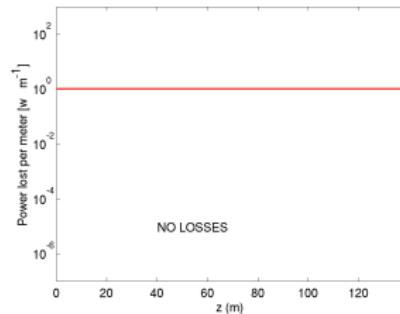


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(39) Cavities Field $\delta F_{static} = 2.0 \%$

Figure: RMS Emittance X

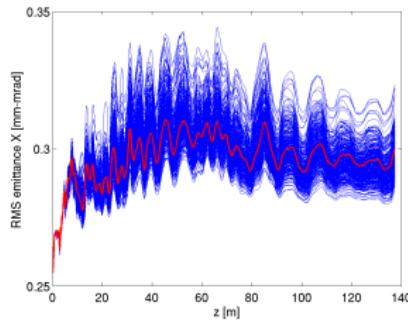


Figure: RMS Emittance Y

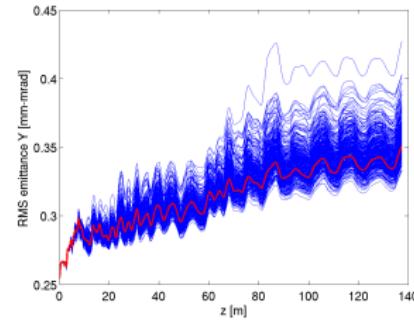


Figure: RMS Emittance Z

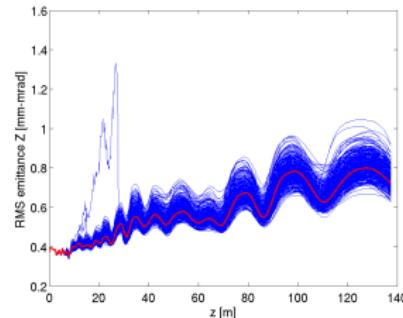
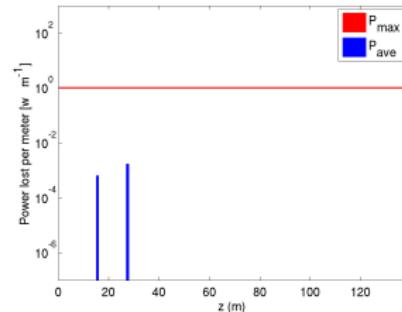


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(40) Cavities Field $\delta F_{static} = 2.5 \%$

Figure: RMS Emittance X

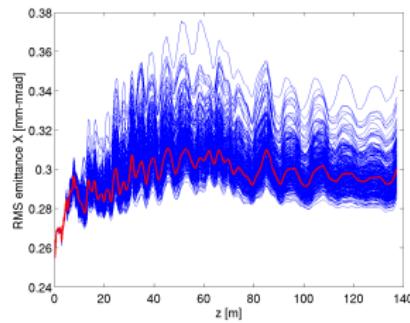


Figure: RMS Emittance Y

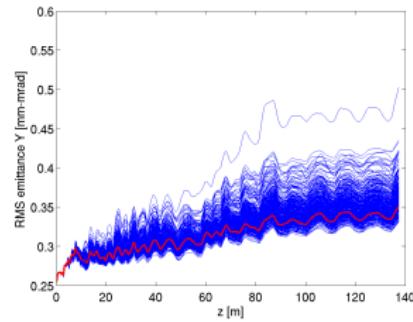


Figure: RMS Emittance Z

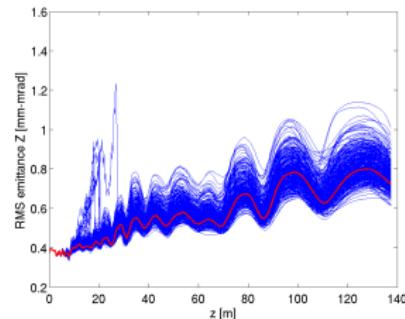
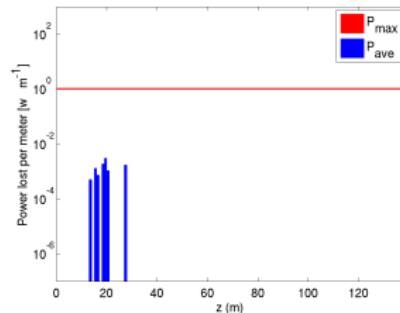


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(41) Cavities $\delta_x = 150 \mu\text{m}$

Figure: RMS Emittance X

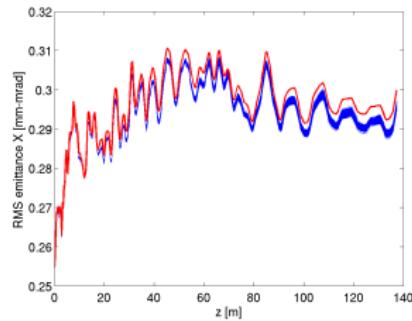


Figure: RMS Emittance Y

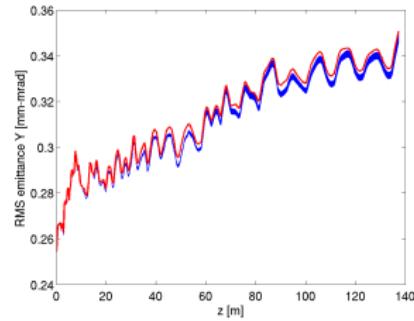


Figure: RMS Emittance Z

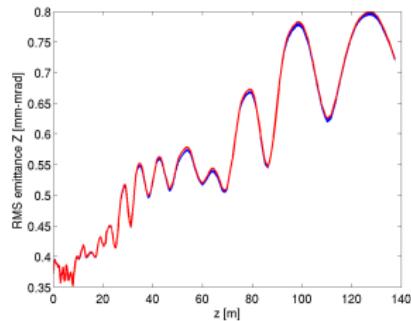
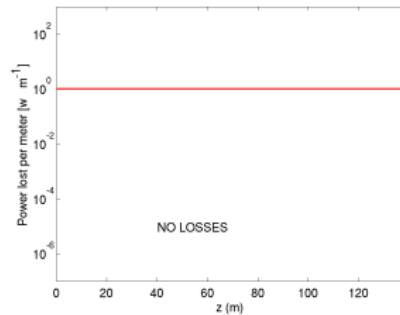


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(42) Cavities $\delta_x = 300 \mu\text{m}$

Figure: RMS Emittance X

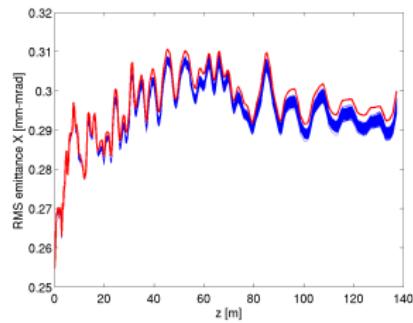


Figure: RMS Emittance Y

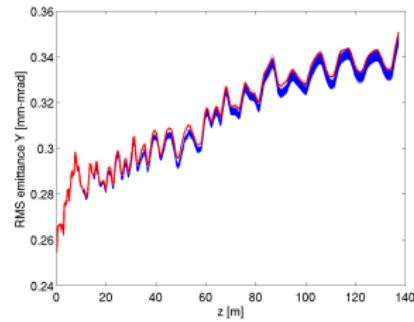


Figure: RMS Emittance Z

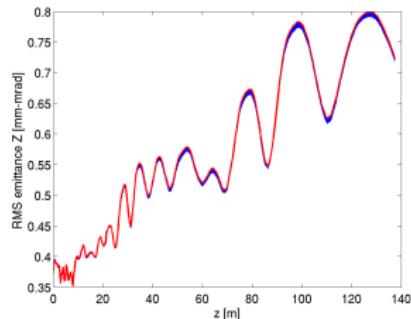
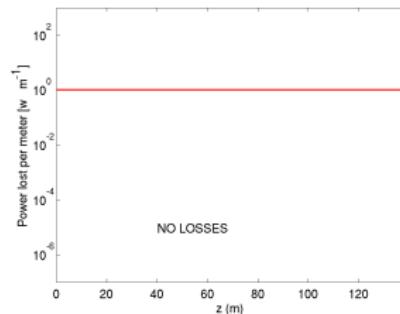


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(43) Cavities $\delta_x = 500 \mu\text{m}$

Figure: RMS Emittance X

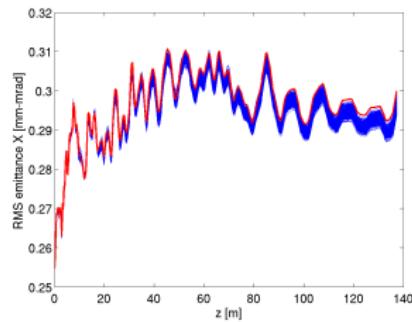


Figure: RMS Emittance Y

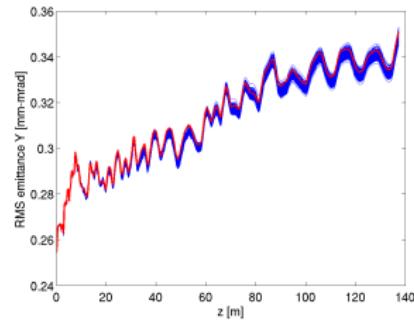


Figure: RMS Emittance Z

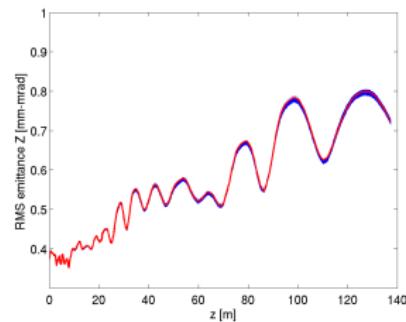
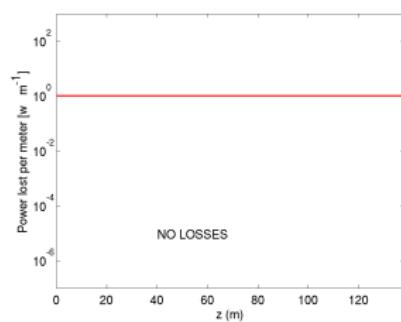


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(44) Cavities $\delta_x = 750 \mu\text{m}$

Figure: RMS Emittance X

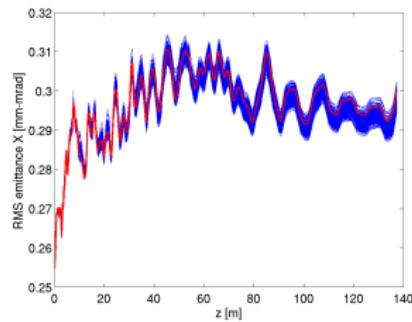


Figure: RMS Emittance Y

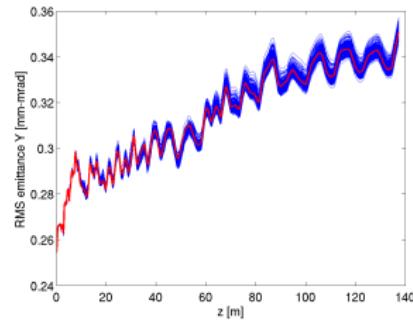


Figure: RMS Emittance Z

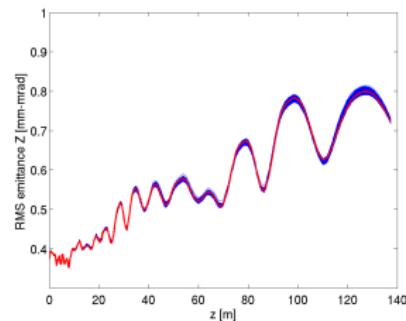
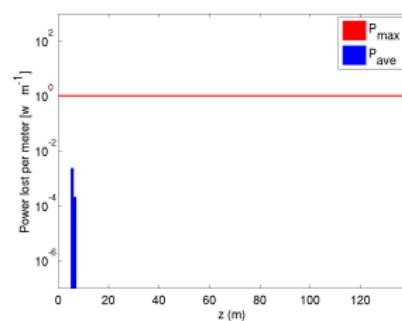


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(45) Cavities $\delta_x = 1000 \mu\text{m}$

Figure: RMS Emittance X

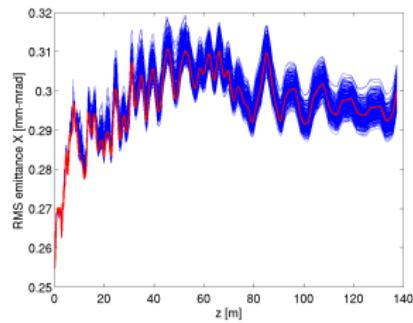


Figure: RMS Emittance Y

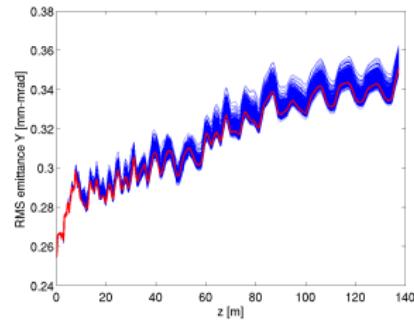


Figure: RMS Emittance Z

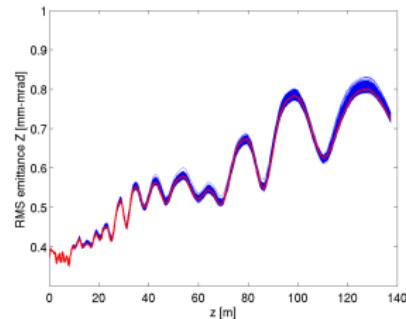
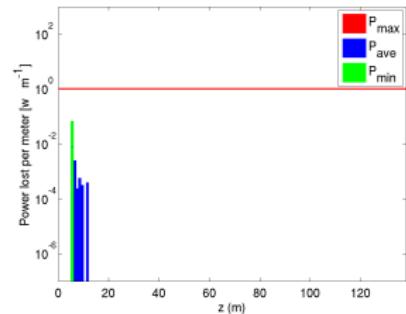


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(46) Cavities $\delta_x = \delta_y = 150 \mu\text{m}$

Figure: RMS Emittance X

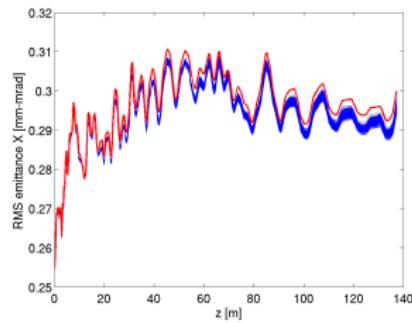


Figure: RMS Emittance Y

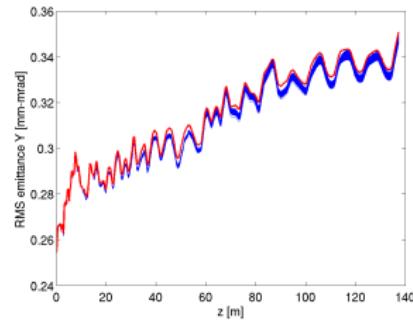


Figure: RMS Emittance Z

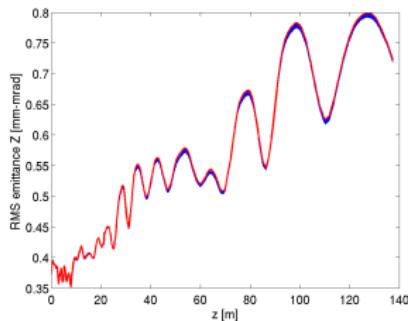
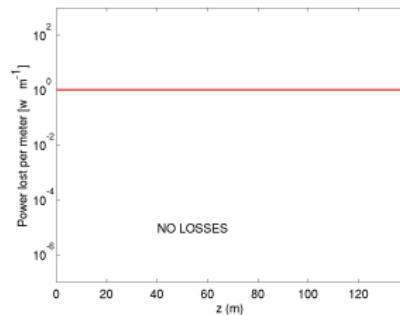


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(47) Cavities $\delta_x = \delta_y = 300 \mu\text{m}$

Figure: RMS Emittance X

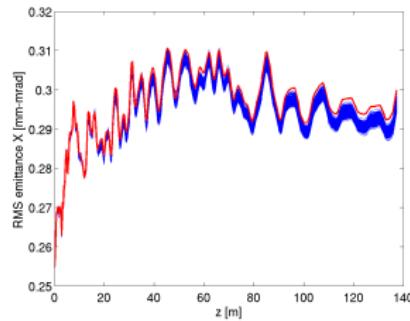


Figure: RMS Emittance Y

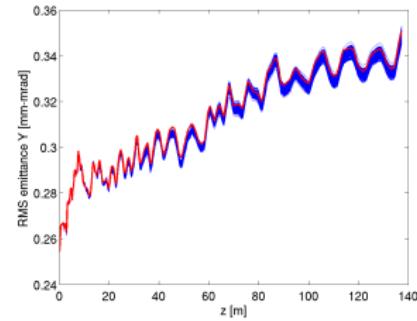


Figure: RMS Emittance z

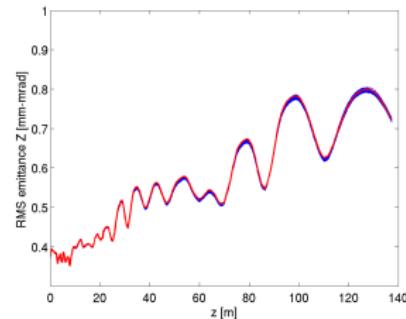
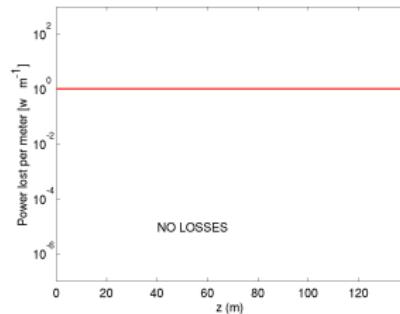


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(48) Cavities $\delta_x = \delta_y = 500 \mu\text{m}$

Figure: RMS Emittance X

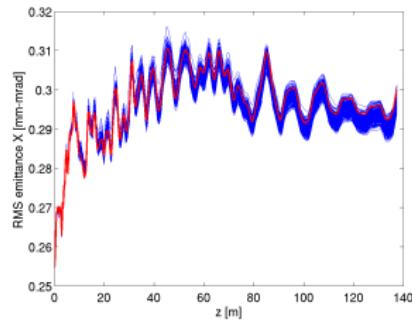


Figure: RMS Emittance Y

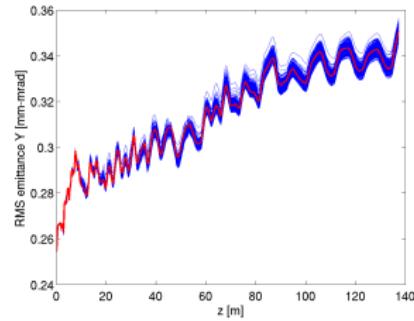


Figure: RMS Emittance Z

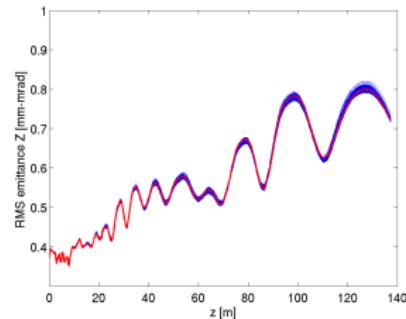
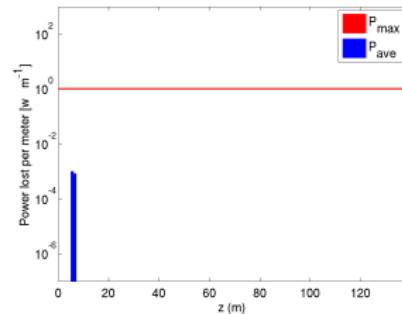


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(49) Cavities $\delta_x = \delta_y = 750 \mu\text{m}$

Figure: RMS Emittance X

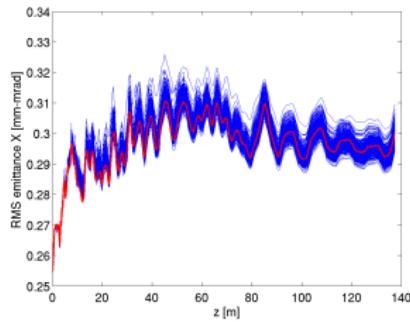


Figure: RMS Emittance Y

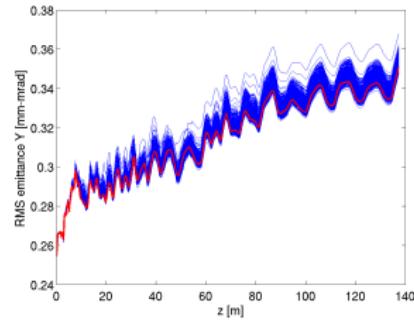


Figure: RMS Emittance Z

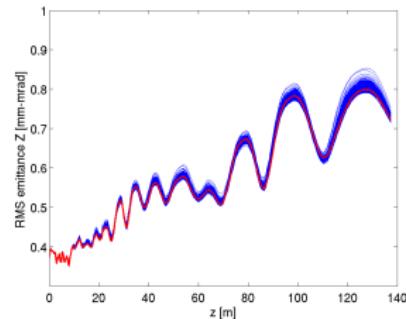
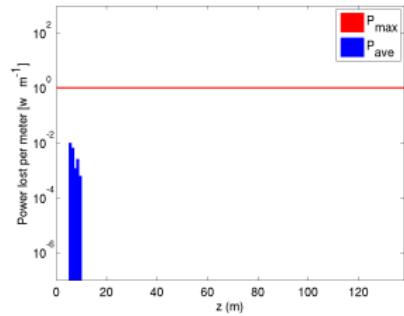


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(50) Cavities $\delta_x = \delta_y = 1000 \mu\text{m}$

Figure: RMS Emittance X

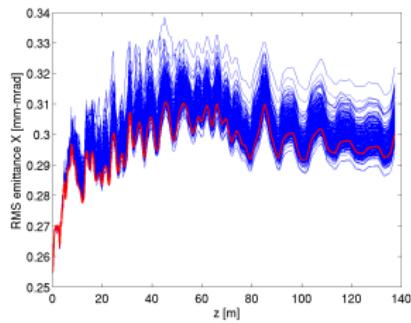


Figure: RMS Emittance Y

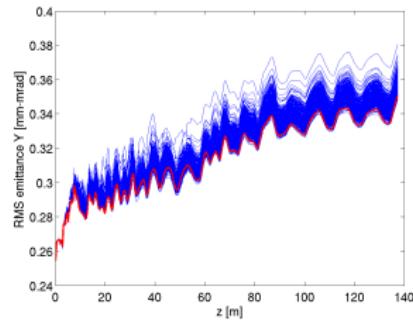


Figure: RMS Emittance Z

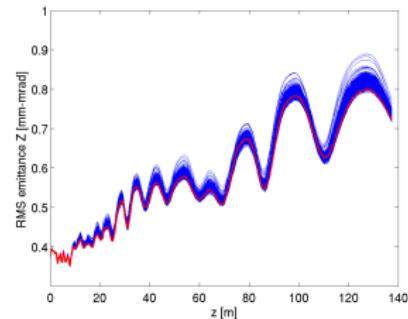
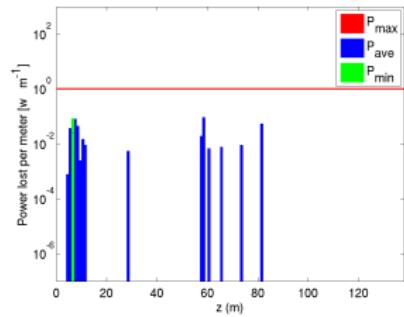


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(51) Cavities $\delta_z = 150 \mu\text{m}$

Figure: RMS Emittance X

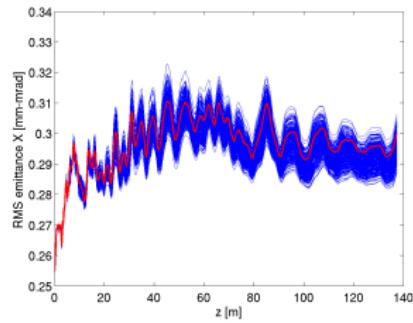


Figure: RMS Emittance Y

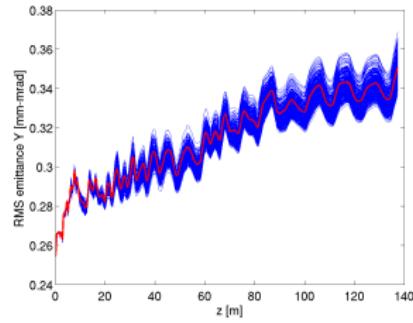


Figure: RMS Emittance Z

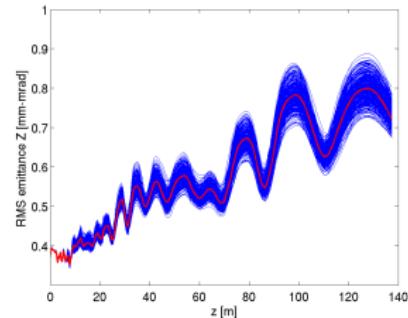
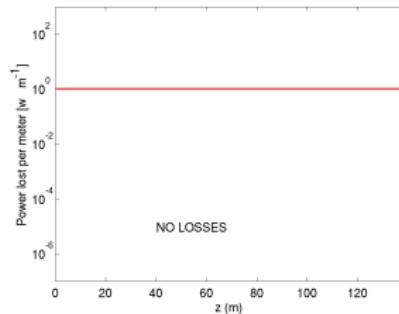


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(52) Cavities $\delta_z = 300 \mu\text{m}$

Figure: RMS Emittance X

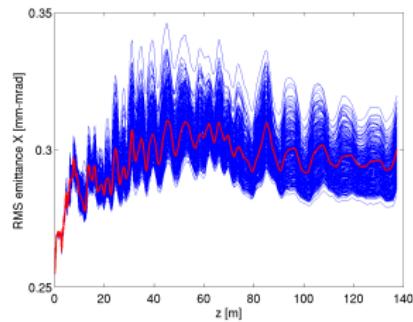


Figure: RMS Emittance Y

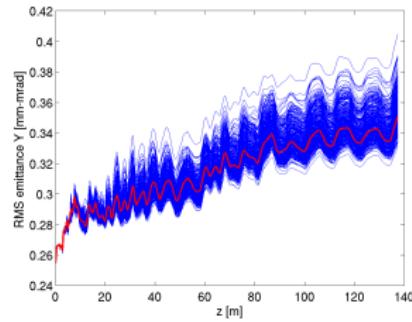


Figure: RMS Emittance Z

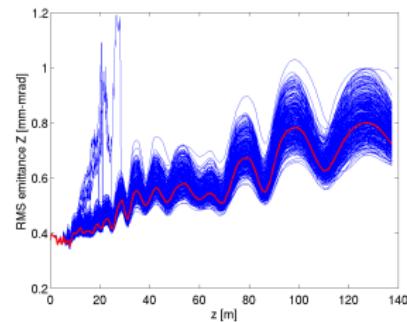
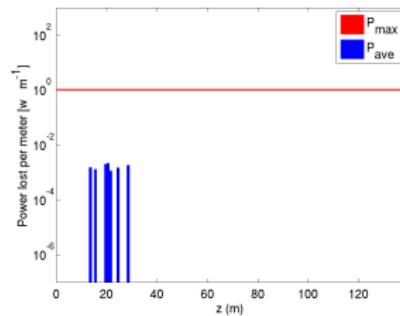


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(53) Cavities $\delta_z = 500 \mu\text{m}$

Figure: RMS Emittance X

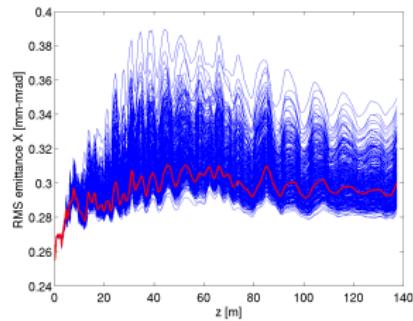


Figure: RMS Emittance Y

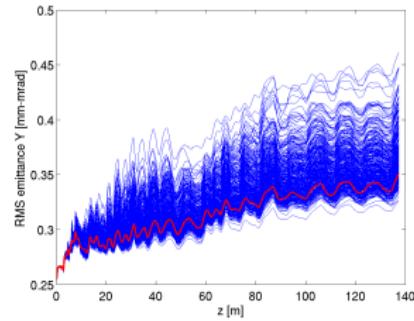


Figure: RMS Emittance Z

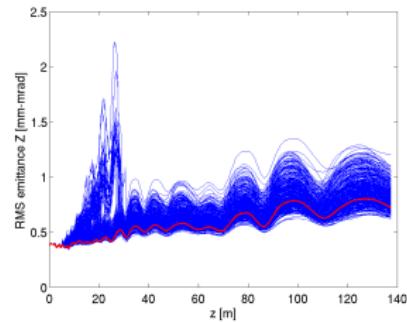
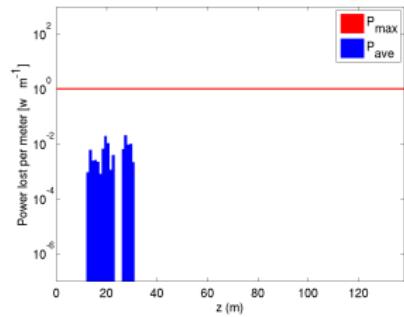


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(54) Cavities $\delta_z = 750 \mu\text{m}$

Figure: RMS Emittance X

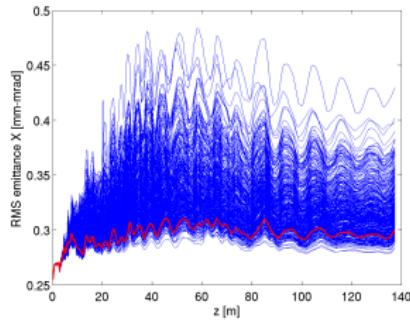


Figure: RMS Emittance Y

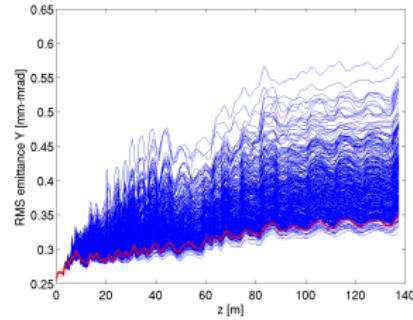


Figure: RMS Emittance Z

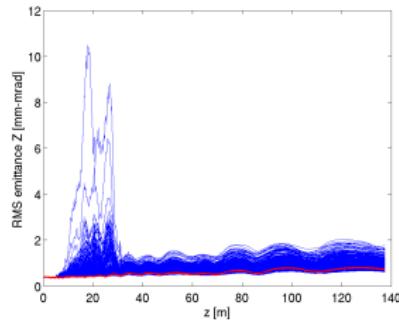
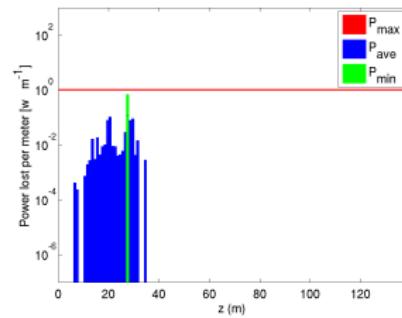


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(55) Cavities $\delta_z = 1000 \mu\text{m}$

Figure: RMS Emittance X

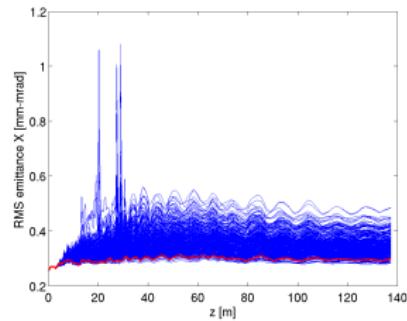


Figure: RMS Emittance Y

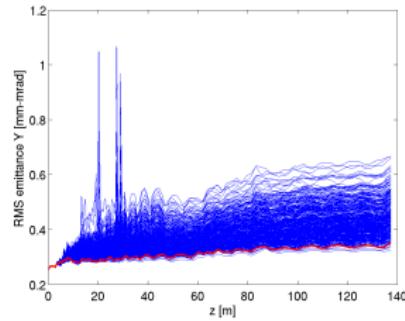


Figure: RMS Emittance Z

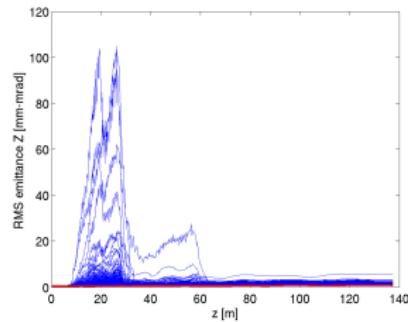
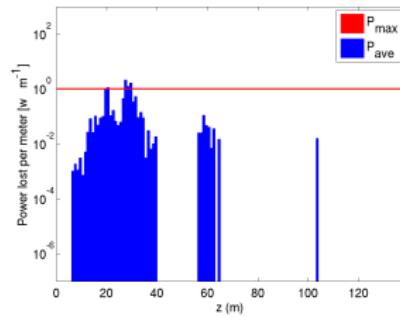


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(56) Cavities $\phi_x = 1$ mrad

Figure: RMS Emittance X

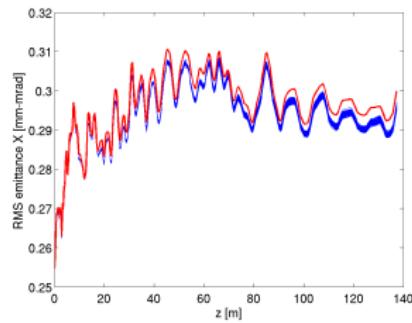


Figure: RMS Emittance Y

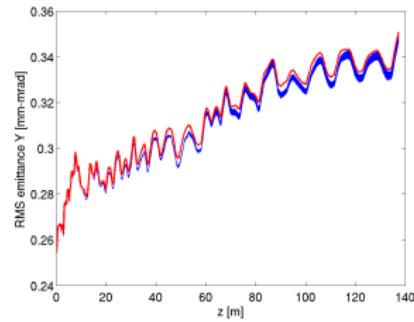


Figure: RMS Emittance Z

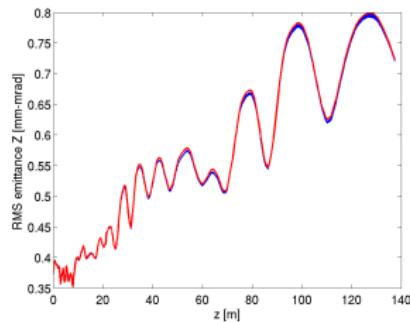
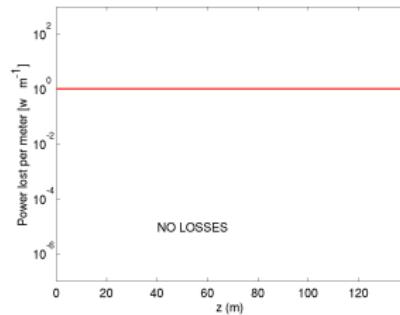


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(57) Cavities $\phi_x = 2$ mrad

Figure: RMS Emittance X

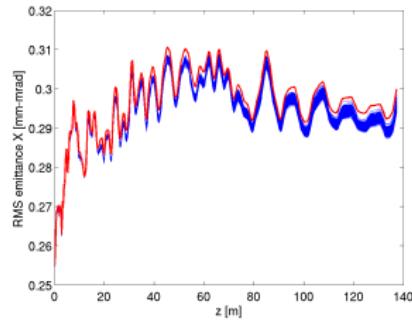


Figure: RMS Emittance Y

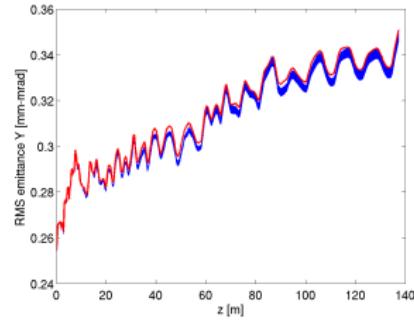


Figure: RMS Emittance Z

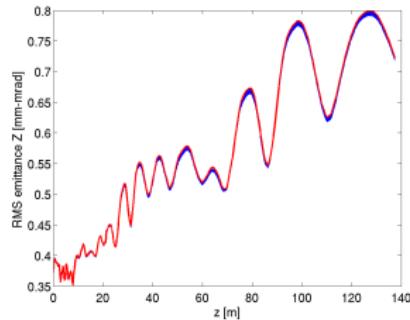
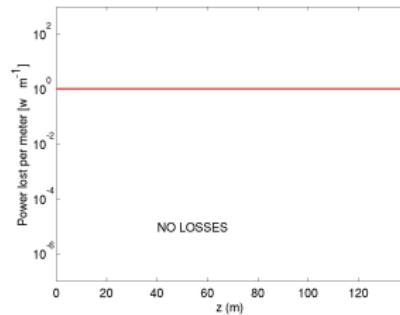


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(58) Cavities $\phi_x = 5$ mrad

Figure: RMS Emittance X

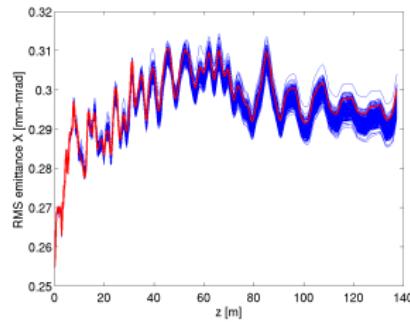


Figure: RMS Emittance Y

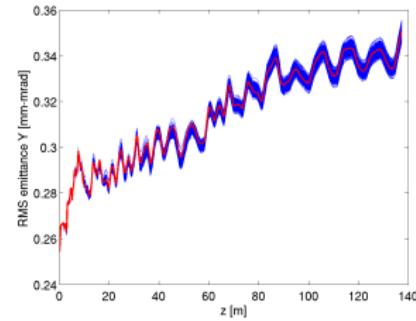


Figure: RMS Emittance Z

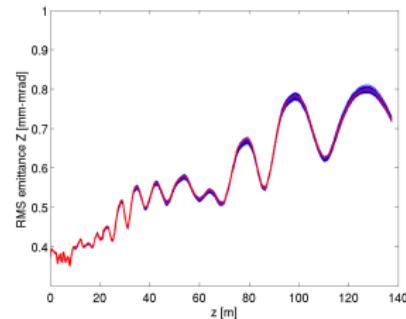
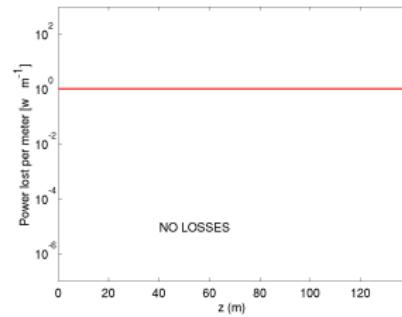


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(59) Cavities $\phi_x = 7$ mrad

Figure: RMS Emittance X

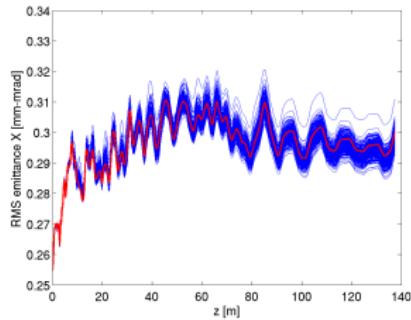


Figure: RMS Emittance Y

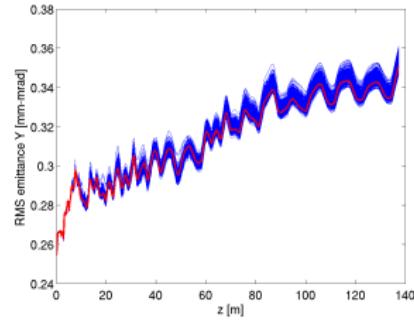


Figure: RMS Emittance Z

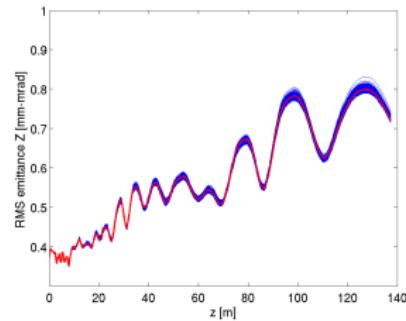
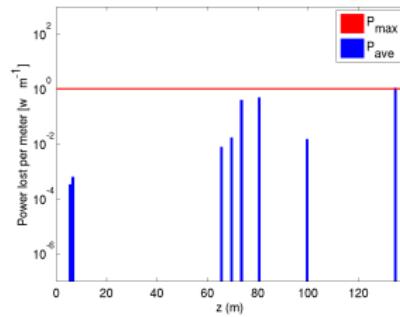


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(60) Cavities $\phi_x = 10$ mrad

Figure: RMS Emittance X

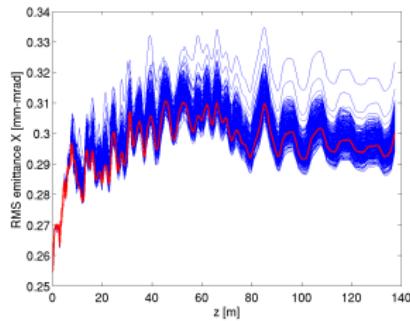


Figure: RMS Emittance Y

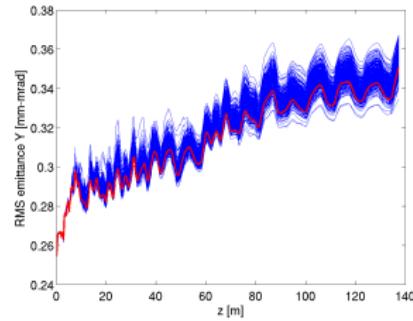


Figure: RMS Emittance Z

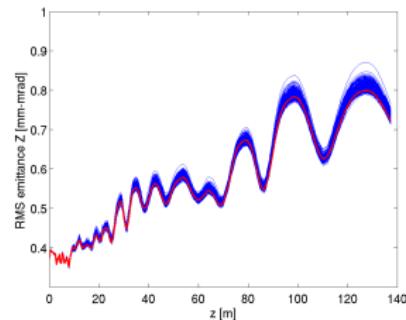
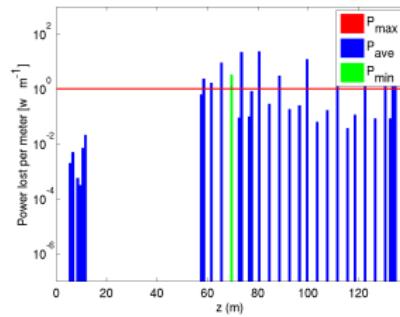


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(61) Cavities $\phi_x = \phi_y = 1$ mrad

Figure: RMS Emittance X

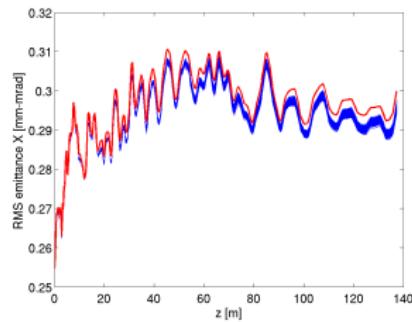


Figure: RMS Emittance Y

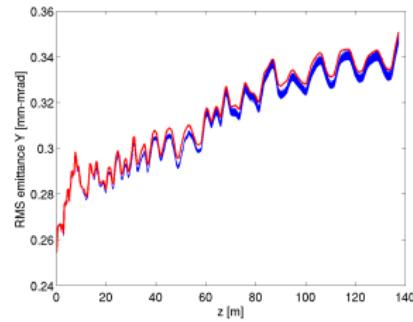


Figure: RMS Emittance Z

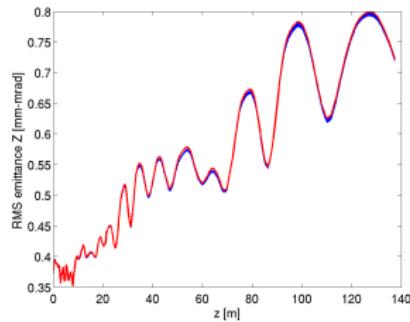
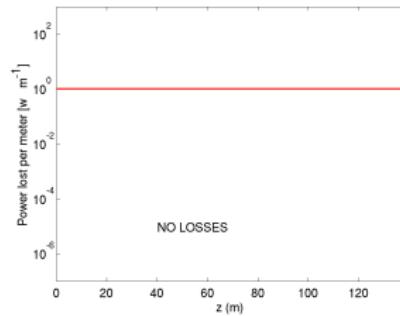


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(62) Cavities $\phi_x = \phi_y = 2$ mrad

Figure: RMS Emittance X

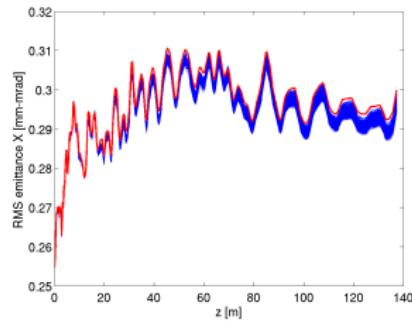


Figure: RMS Emittance Y

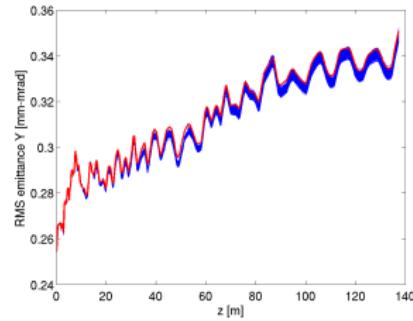


Figure: RMS Emittance Z

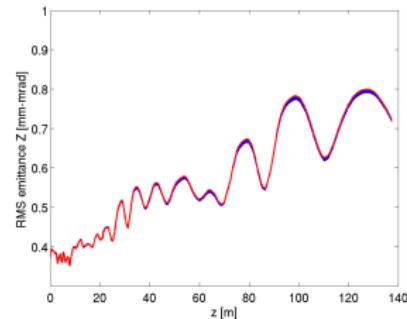
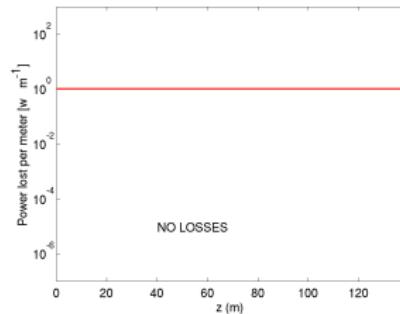


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(63) Cavities $\phi_x = \phi_y = 5$ mrad

Figure: RMS Emittance X

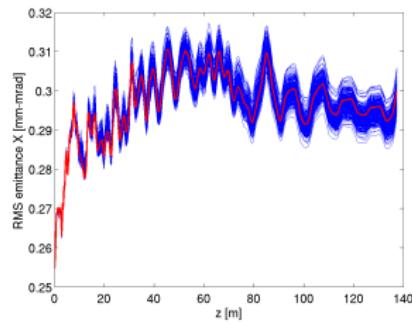


Figure: RMS Emittance Y

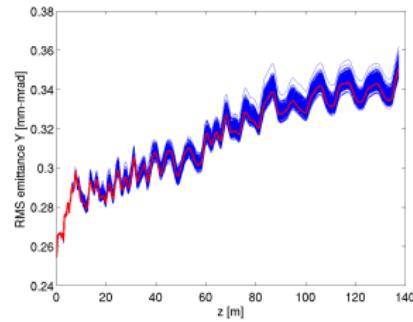


Figure: RMS Emittance Z

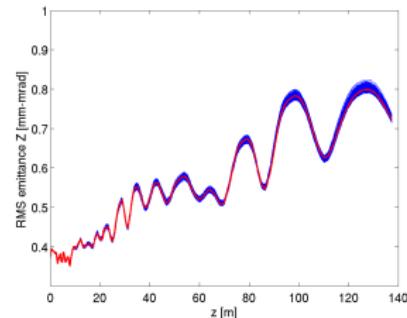
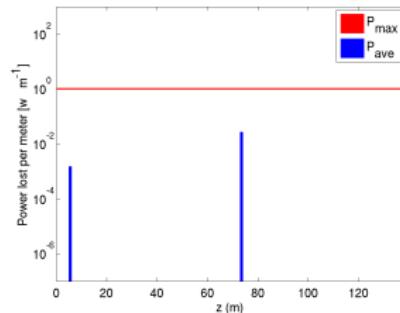


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(64) Cavities $\phi_x = \phi_y = 7$ mrad

Figure: RMS Emittance X

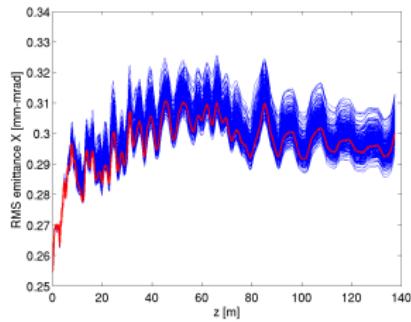


Figure: RMS Emittance Y

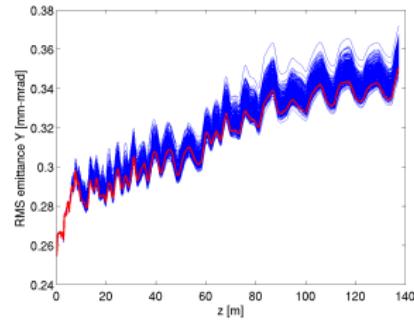


Figure: RMS Emittance Z

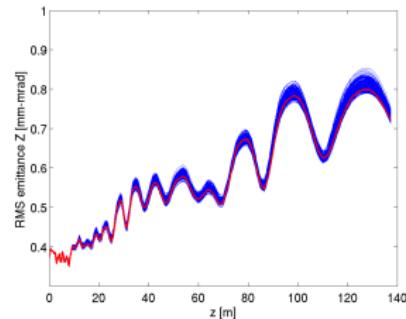
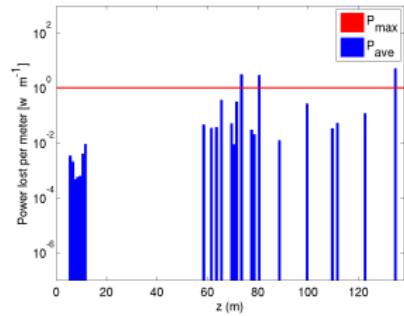


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(65) Cavities $\phi_x = \phi_y = 10$ mrad

Figure: RMS Emittance X

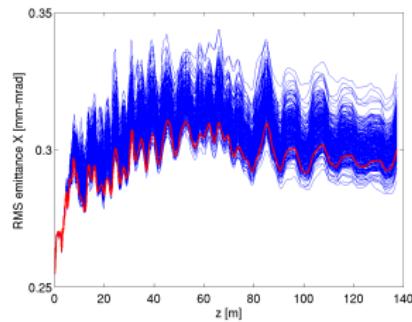


Figure: RMS Emittance Y

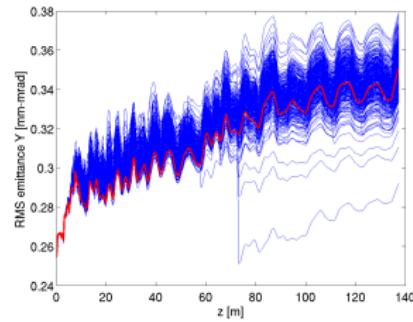


Figure: RMS Emittance Z

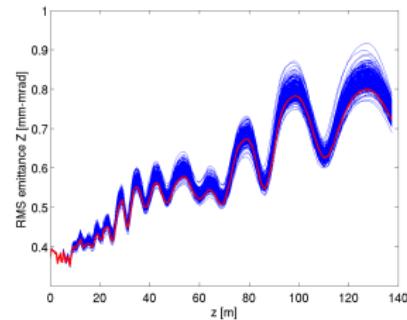
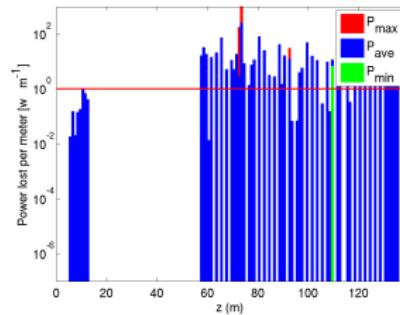


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(66) Cavities $\phi_z = 1$ mrad

Figure: RMS Emittance X

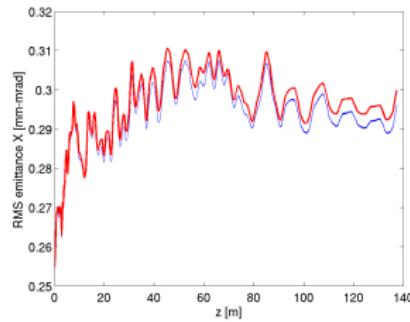


Figure: RMS Emittance Y

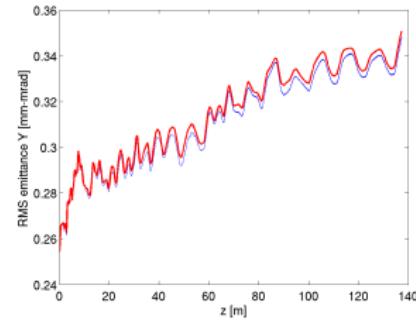


Figure: RMS Emittance Z

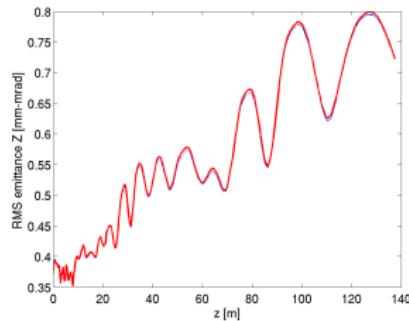
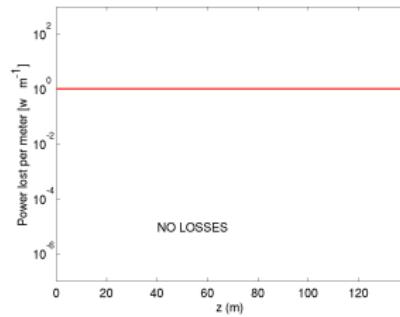


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(67) Cavities $\phi_z = 2$ mrad

Figure: RMS Emittance X

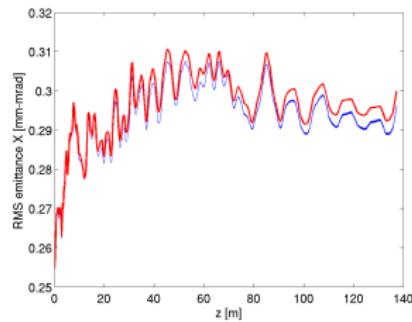


Figure: RMS Emittance Y

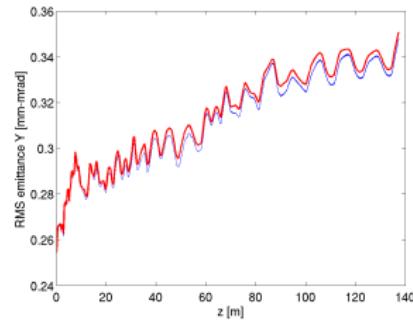


Figure: RMS Emittance z

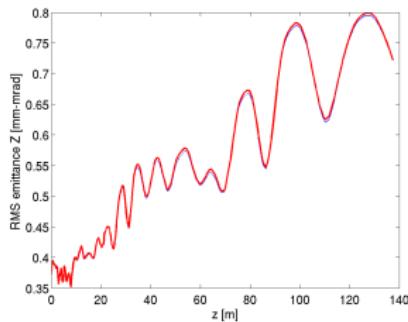
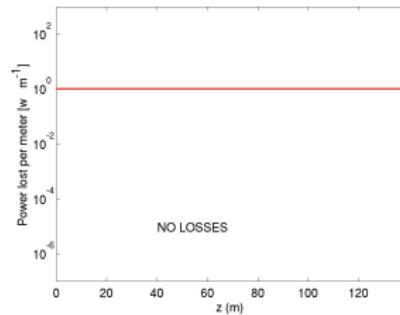


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(68) Cavities $\phi_z = 5$ mrad

Figure: RMS Emittance X

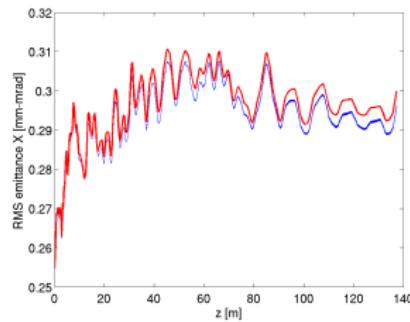


Figure: RMS Emittance Y

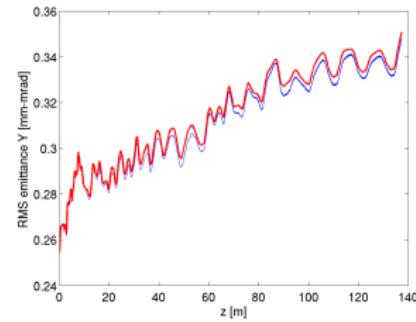


Figure: RMS Emittance Z

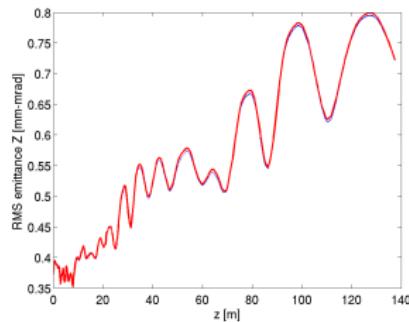
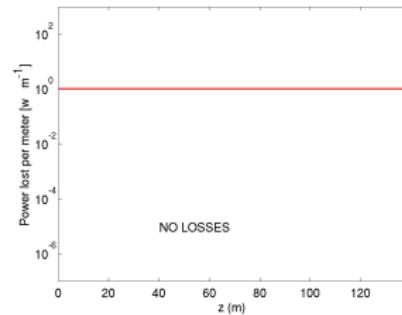


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(69) Cavities $\phi_z = 7$ mrad

Figure: RMS Emittance X

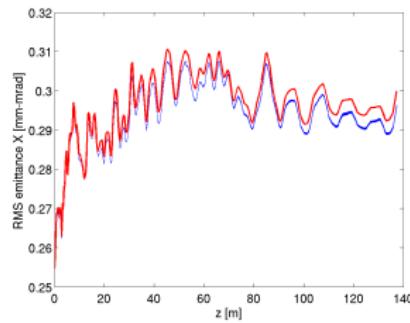


Figure: RMS Emittance Y

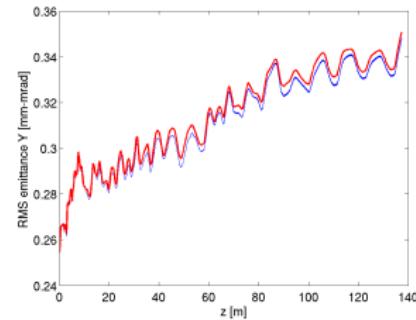


Figure: RMS Emittance Z

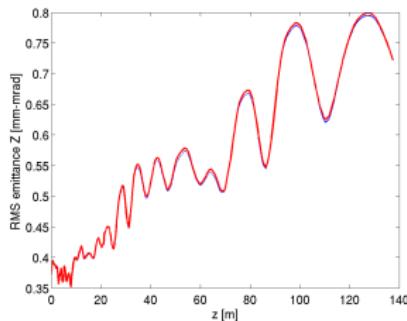
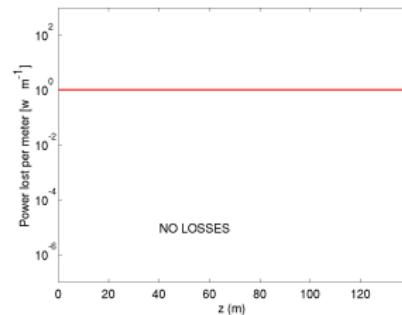


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(70) Cavities $\phi_z = 10$ mrad

Figure: RMS Emittance X

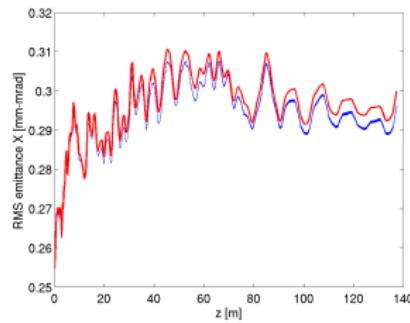


Figure: RMS Emittance Y

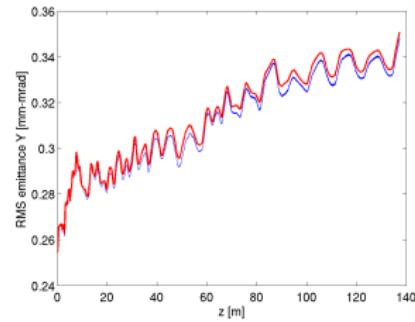


Figure: RMS Emittance Z

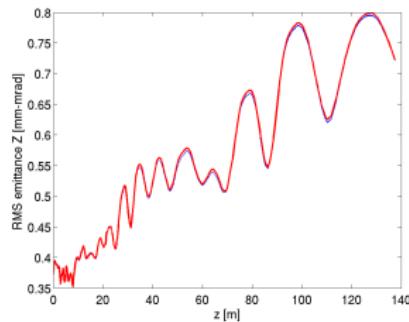
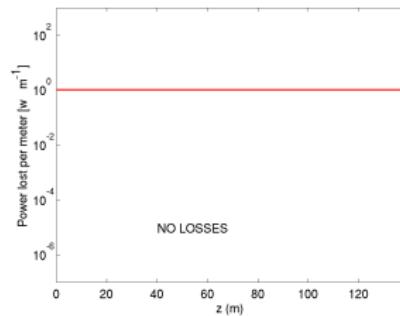


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(71) Solenoids $\delta_x = \delta_y = 150 \mu\text{m}$

Figure: RMS Emittance X

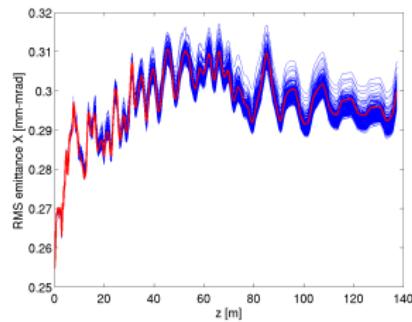


Figure: RMS Emittance Y

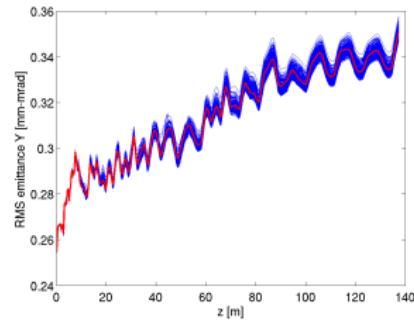


Figure: RMS Emittance Z

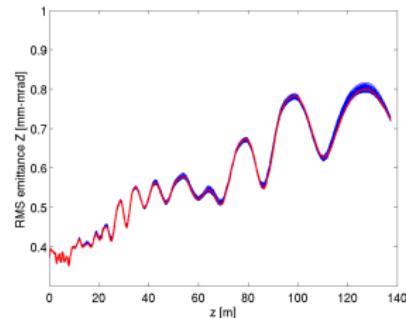
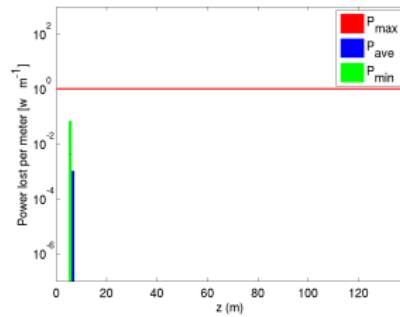


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(72) Solenoids $\delta_x = \delta_y = 300 \mu\text{m}$

Figure: RMS Emittance X

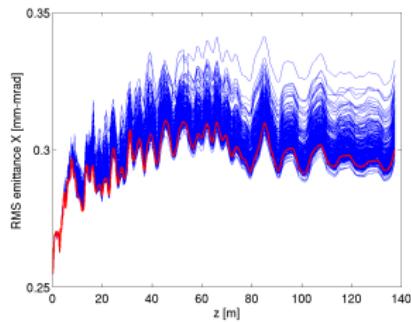


Figure: RMS Emittance Y

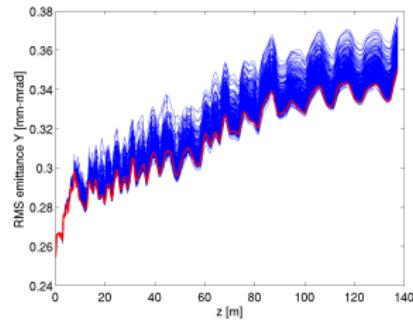


Figure: RMS Emittance Z

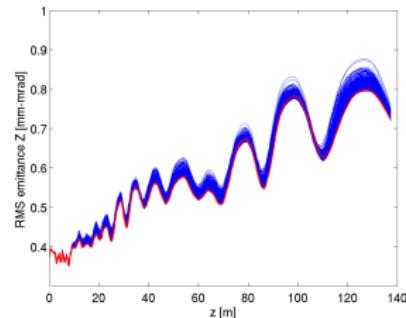
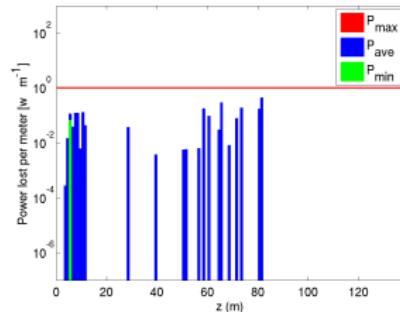


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(73) Solenoids $\delta_x = \delta_y = 500 \mu\text{m}$

Figure: RMS Emittance X

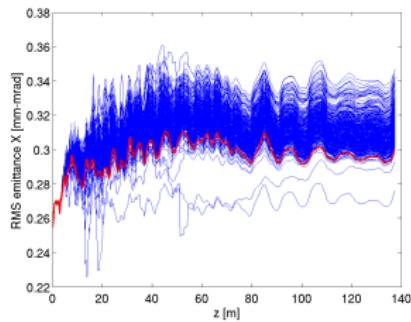


Figure: RMS Emittance Y

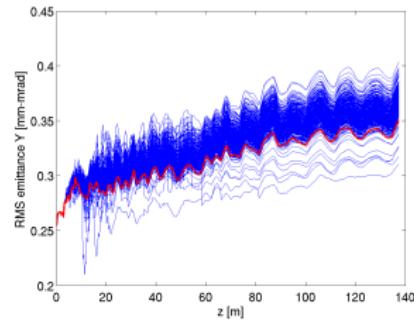


Figure: RMS Emittance Z

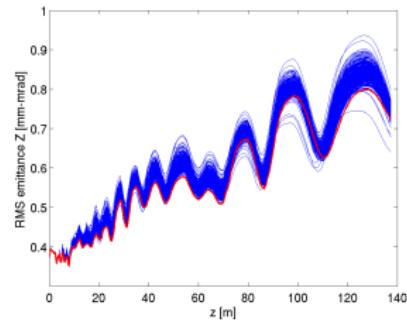
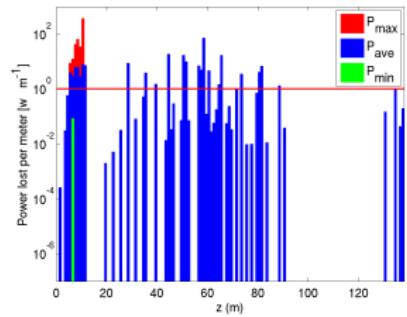


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(74) Solenoids $\delta_x = \delta_y = 750 \mu\text{m}$

Figure: RMS Emittance X

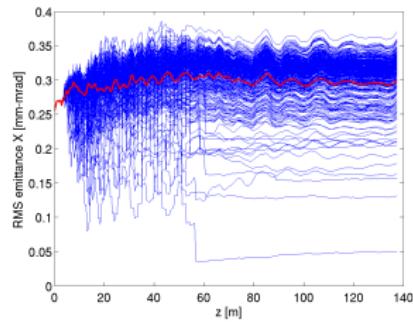


Figure: RMS Emittance Y

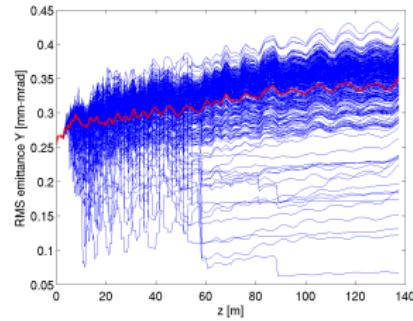


Figure: RMS Emittance Z

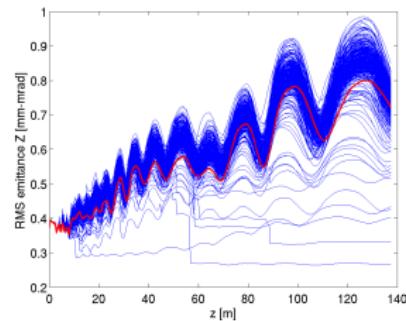
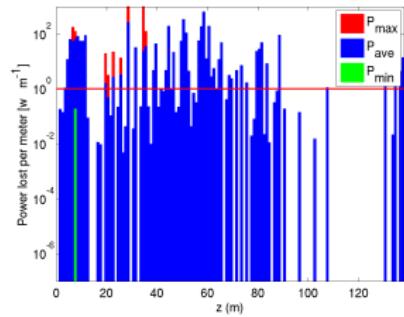


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(75) Solenoids $\delta_x = \delta_y = 1000 \mu\text{m}$

Figure: RMS Emittance X

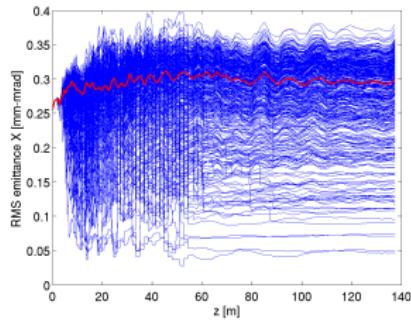


Figure: RMS Emittance Y

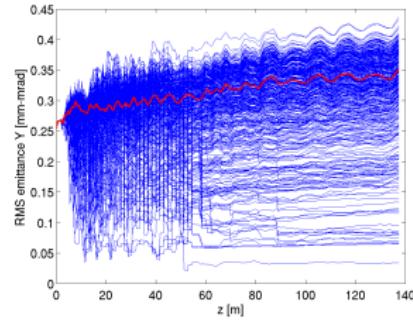


Figure: RMS Emittance Z

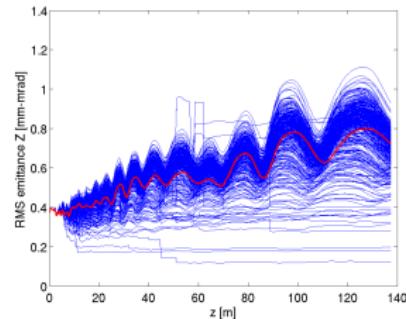
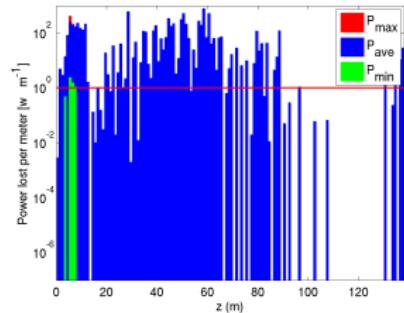


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(76) Solenoids $\delta_z = 150 \mu\text{m}$

Figure: RMS Emittance X

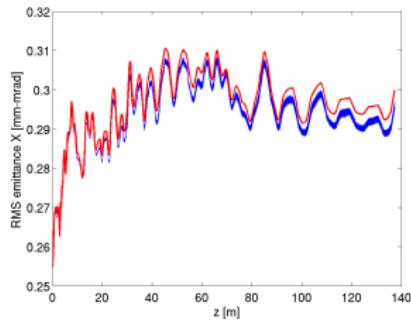


Figure: RMS Emittance Y

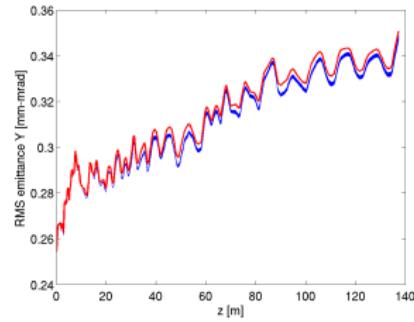


Figure: RMS Emittance Z

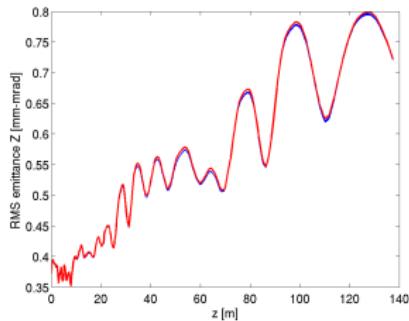
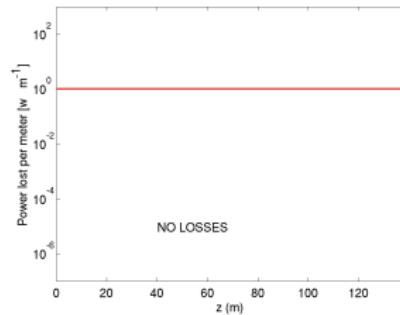


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(77) Solenoids $\delta_z = 300 \mu\text{m}$

Figure: RMS Emittance X

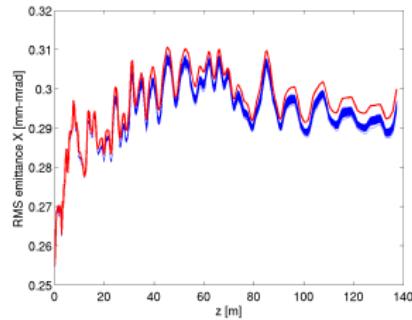


Figure: RMS Emittance Y

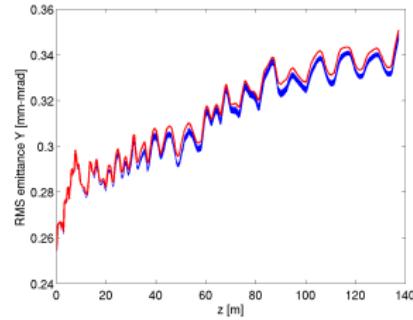


Figure: RMS Emittance Z

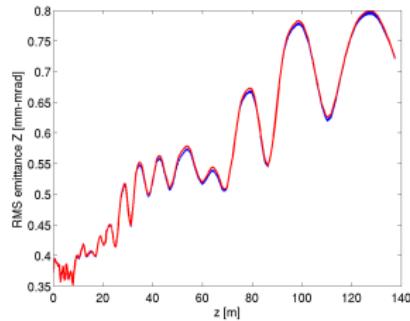
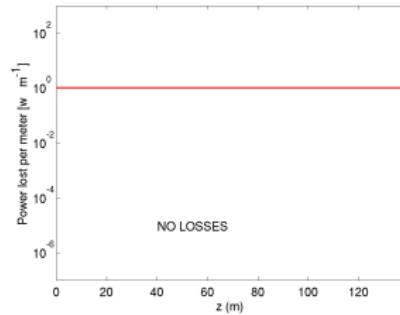


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(78) Solenoids $\delta_z = 500 \mu\text{m}$

Figure: RMS Emittance X

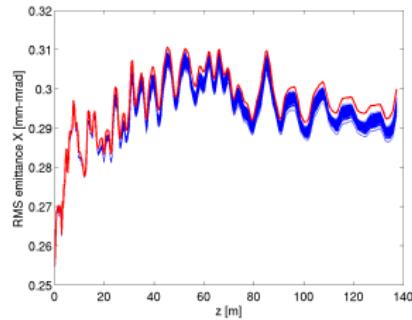


Figure: RMS Emittance Y

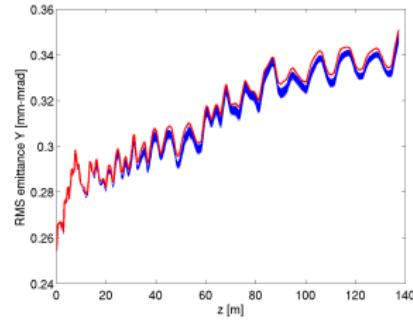


Figure: RMS Emittance Z

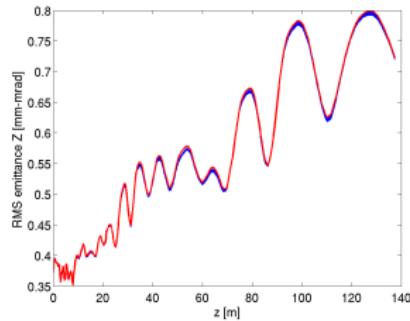
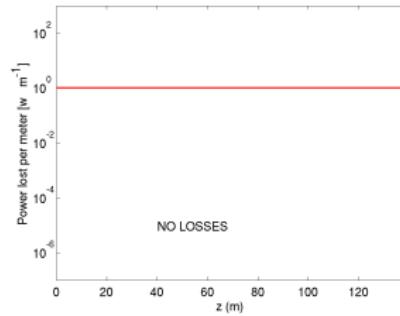


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(79) Solenoids $\delta_z = 750 \mu\text{m}$

Figure: RMS Emittance X

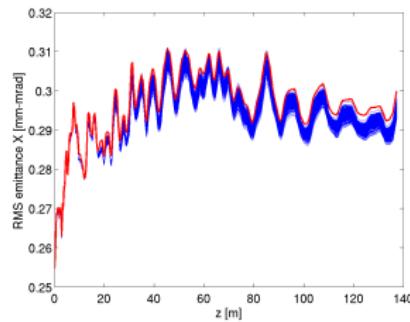


Figure: RMS Emittance Y

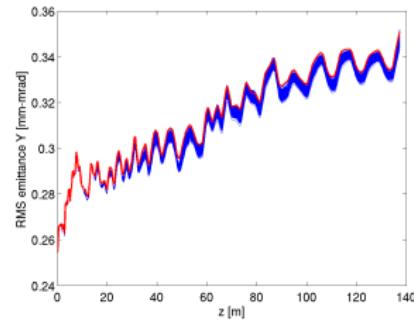


Figure: RMS Emittance Z

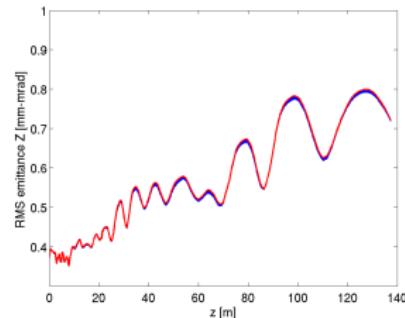
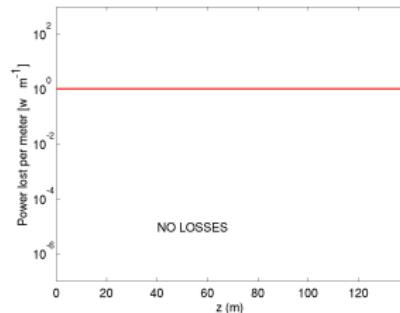


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(80) Solenoids $\delta_z = 1000 \mu\text{m}$

Figure: RMS Emittance X

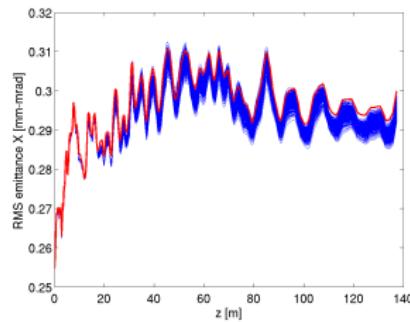


Figure: RMS Emittance Y

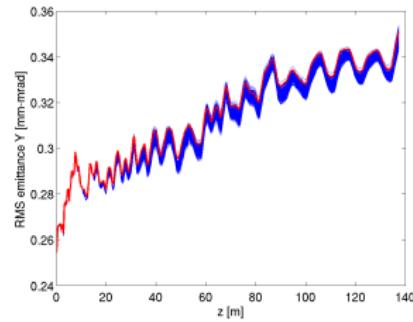


Figure: RMS Emittance Z

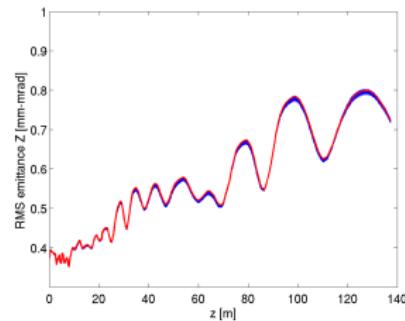
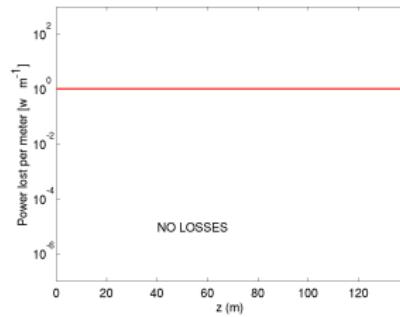


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(81) Solenoids $\phi_x = \phi_y = 1$ mrad

Figure: RMS Emittance X

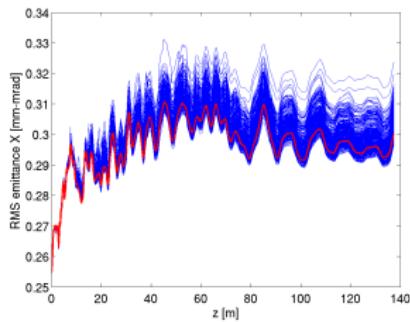


Figure: RMS Emittance Y

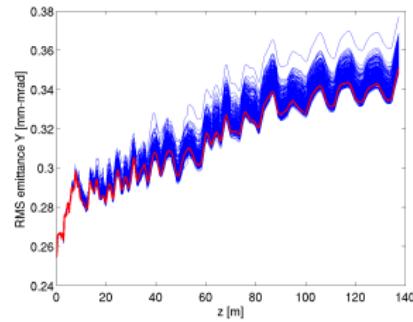


Figure: RMS Emittance Z

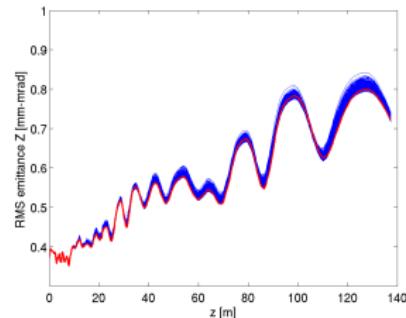
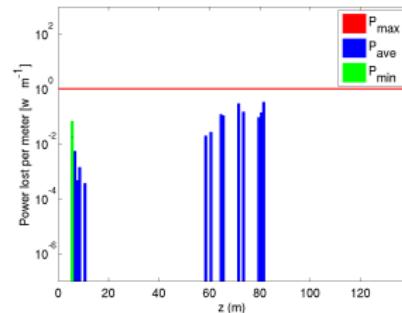


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(82) Solenoids $\phi_x = \phi_y = 2$ mrad

Figure: RMS Emittance X

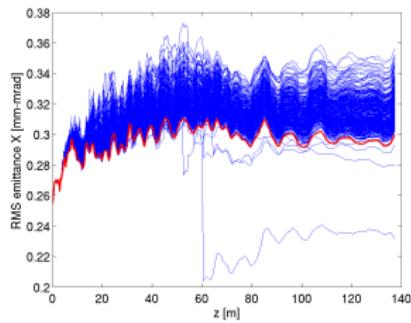


Figure: RMS Emittance Y

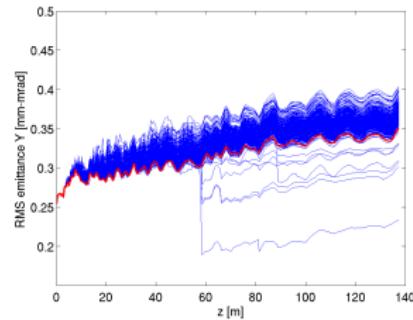


Figure: RMS Emittance Z

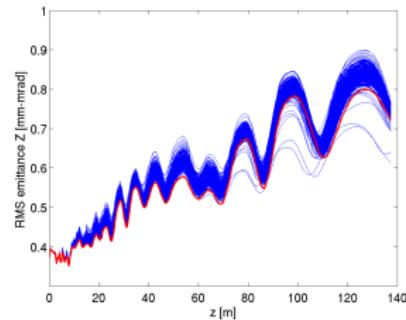
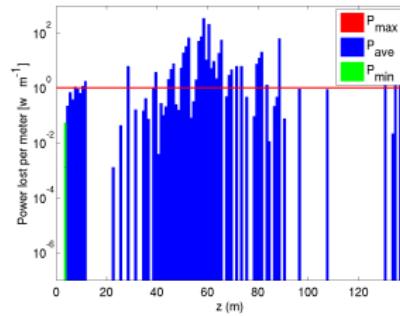


Figure: Losses [$\text{W} \cdot \text{m}^{-1}$]



(83) Solenoids $\phi_x = \phi_y = 5$ mrad

Figure: RMS Emittance X

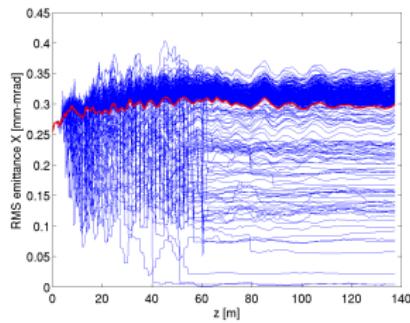


Figure: RMS Emittance Y

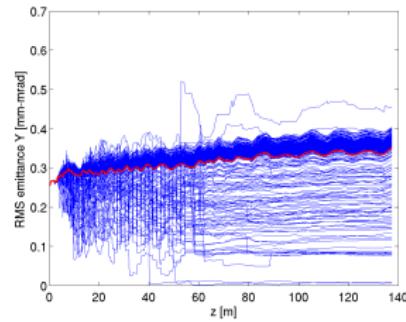


Figure: RMS Emittance Z

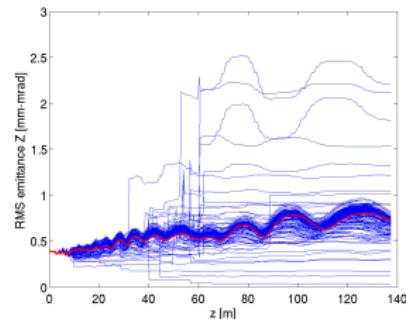
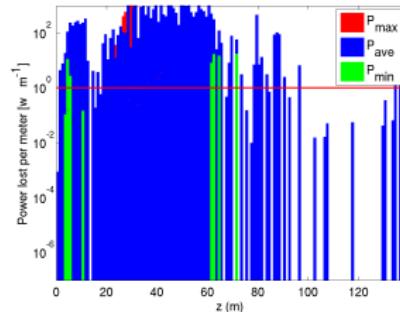


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(84) Solenoids $\phi_x = \phi_y = 7$ mrad

Figure: RMS Emittance X

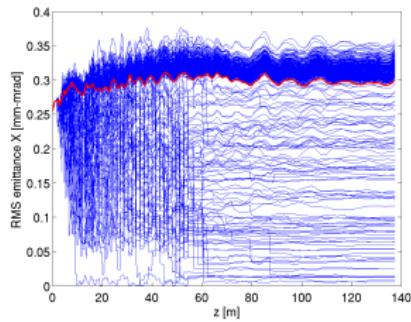


Figure: RMS Emittance Y

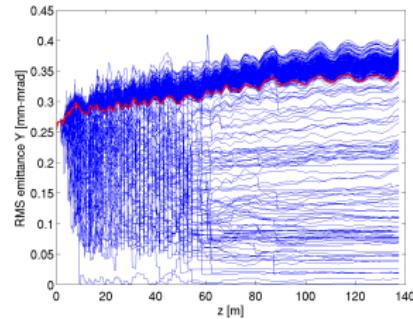


Figure: RMS Emittance Z

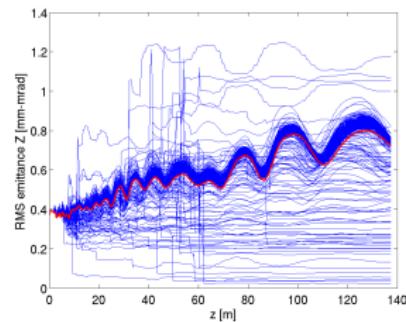
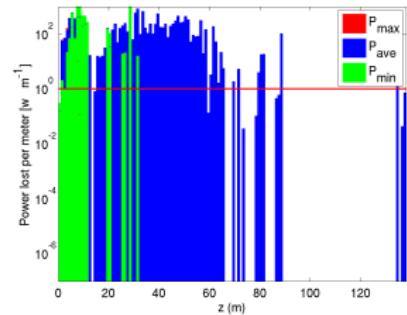


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(85) Solenoids $\phi_x = \phi_y = 10$ mrad

Figure: RMS Emittance X

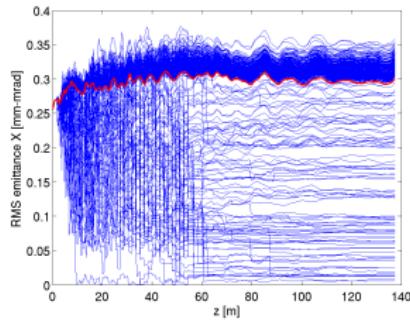


Figure: RMS Emittance Y

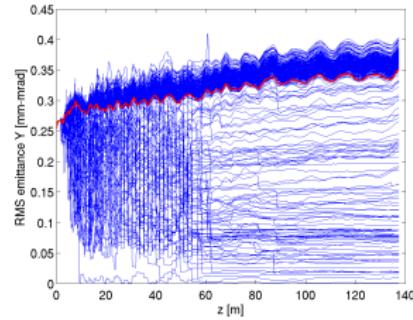


Figure: RMS Emittance Z

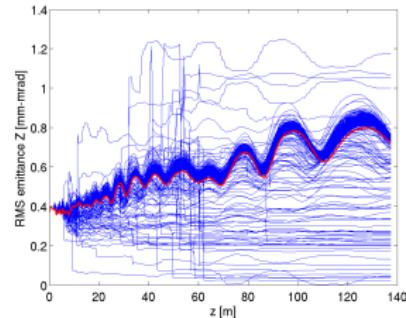
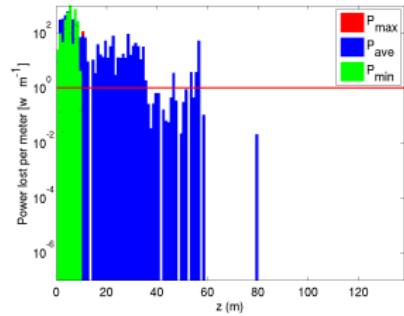


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(86) Solenoids Field $\delta F_{dynamic} = 0.5 \%$

Figure: RMS Emittance X

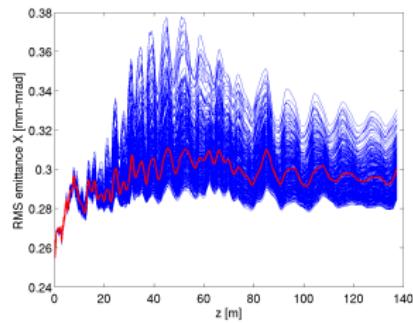


Figure: RMS Emittance Y

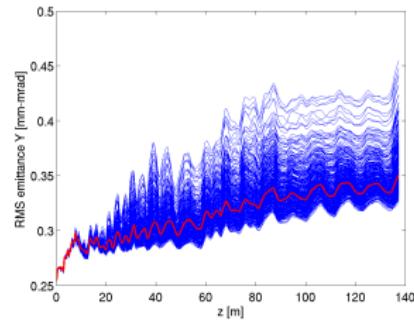


Figure: RMS Emittance Z

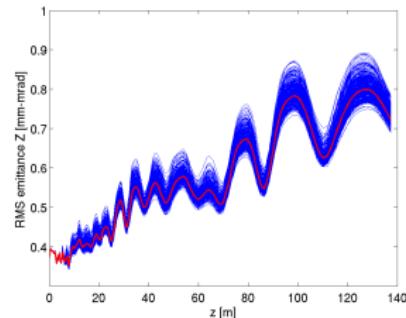
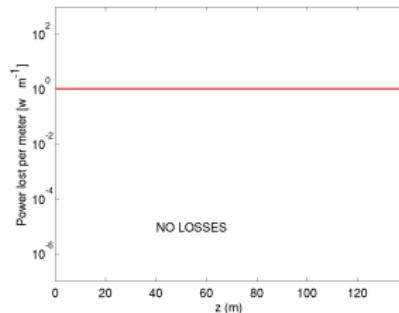


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(87) Solenoids Field $\delta F_{dynamic} = 1.0 \%$

Figure: RMS Emittance X

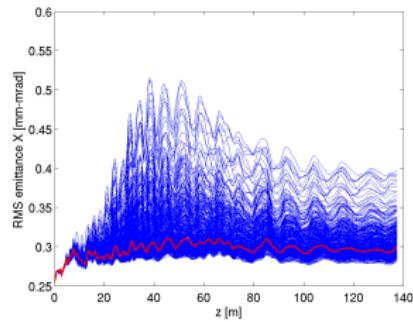


Figure: RMS Emittance Y

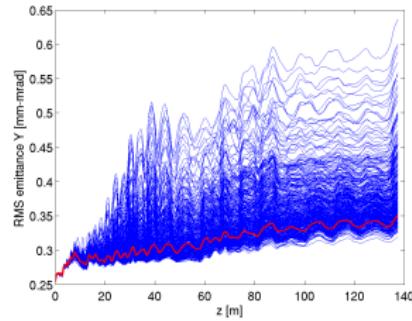


Figure: RMS Emittance z

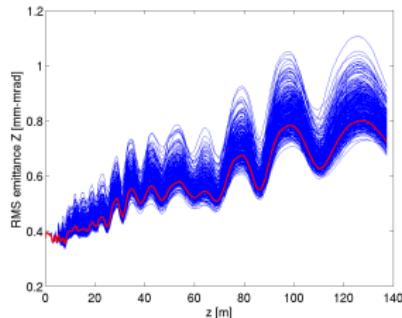
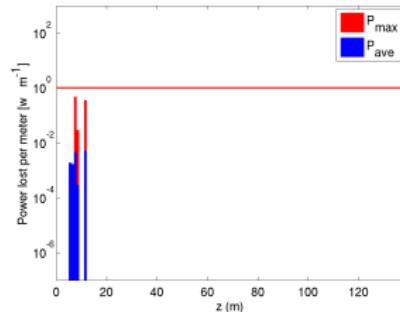


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(88) Solenoids Field $\delta F_{dynamic} = 1.5 \%$

Figure: RMS Emittance X

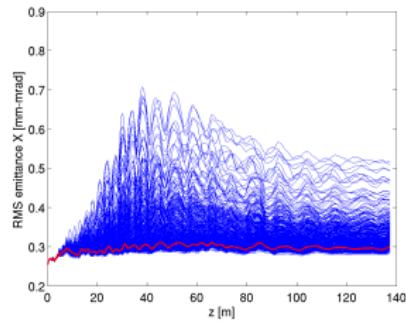


Figure: RMS Emittance Y

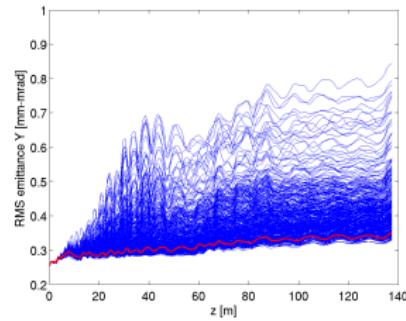


Figure: RMS Emittance Z

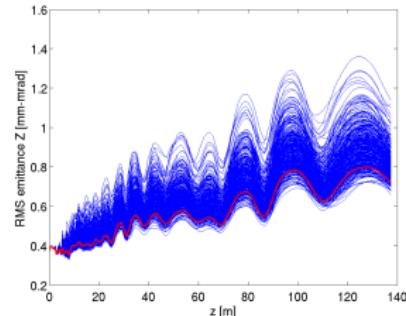
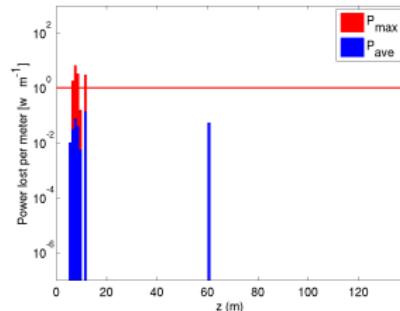


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(89) Solenoids Field $\delta F_{dynamic} = 2.0 \%$

Figure: RMS Emittance X

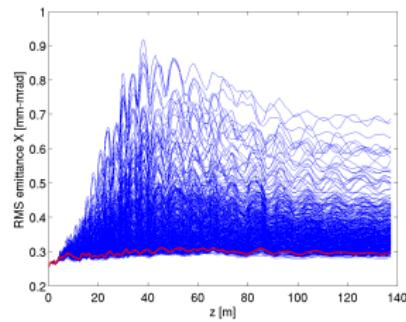


Figure: RMS Emittance Y

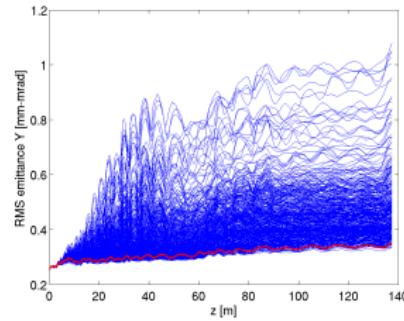


Figure: RMS Emittance Z

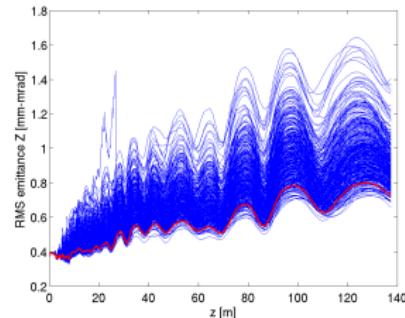
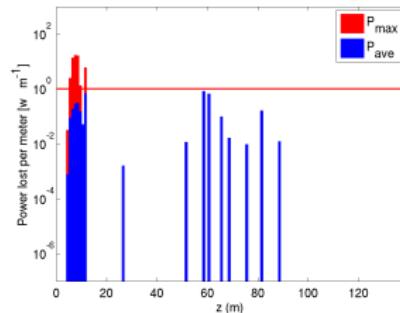


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(90) Solenoids Field $\delta F_{dynamic} = 2.5 \%$

Figure: RMS Emittance X

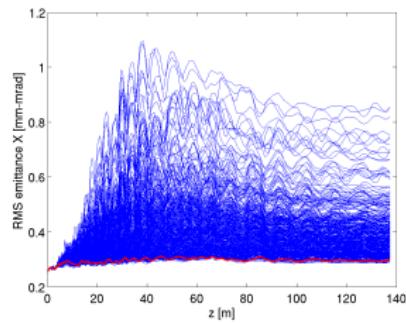


Figure: RMS Emittance Y

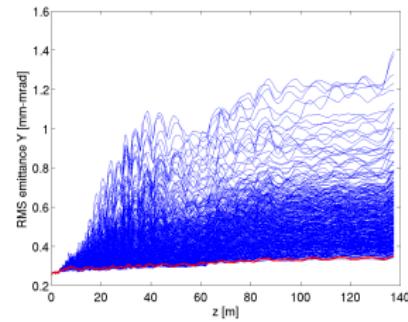


Figure: RMS Emittance Z

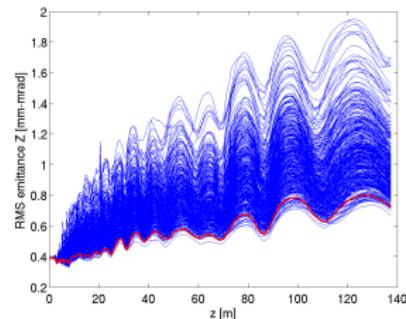
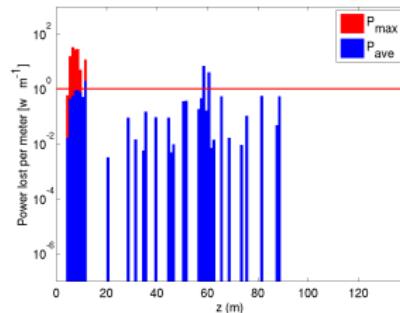


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(91) Solenoids Field $\delta F_{static} = 0.5 \%$

Figure: RMS Emittance X

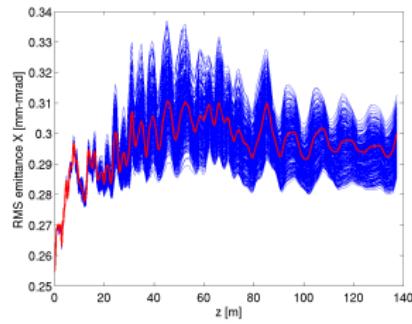


Figure: RMS Emittance Y

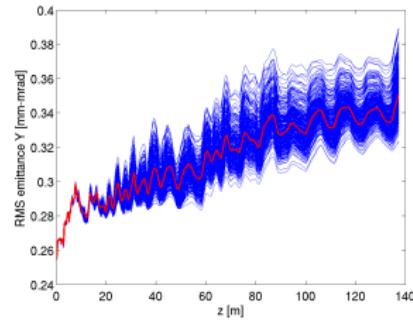


Figure: RMS Emittance Z

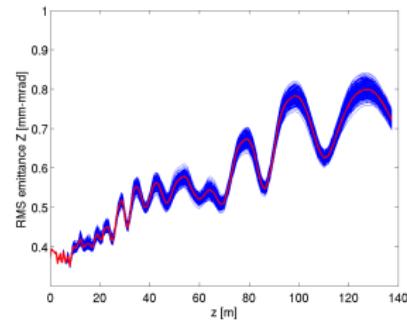
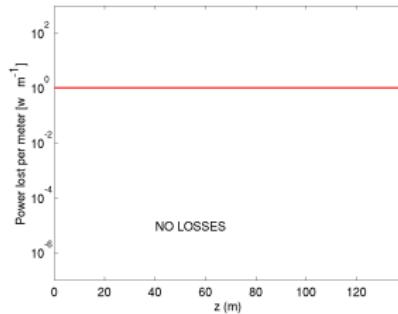


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(92) Solenoids Field $\delta F_{static} = 1.0 \%$

Figure: RMS Emittance X

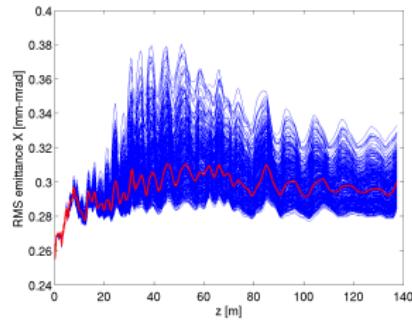


Figure: RMS Emittance Y

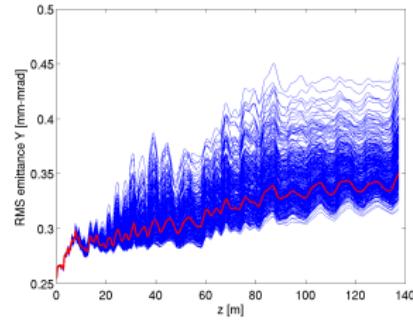


Figure: RMS Emittance Z

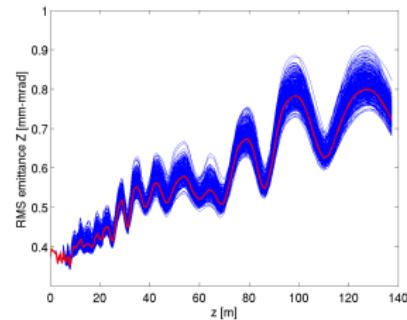
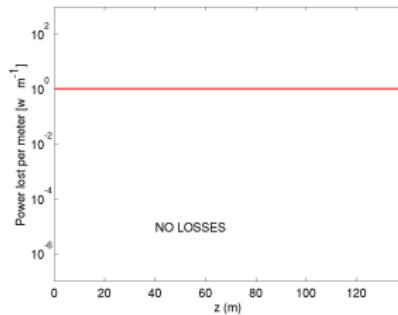


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(53) Solenoids Field $\delta F_{static} = 1.5 \%$

Figure: RMS Emittance X

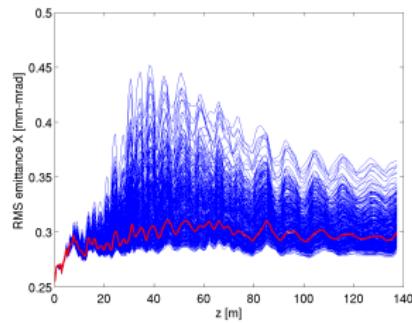


Figure: RMS Emittance Y

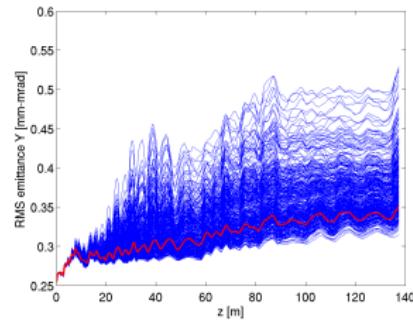


Figure: RMS Emittance Z

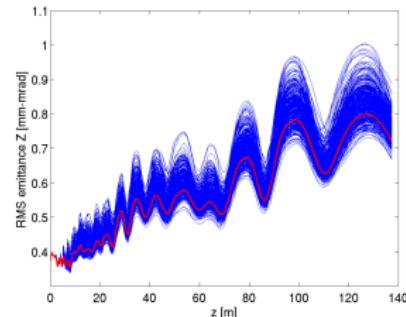
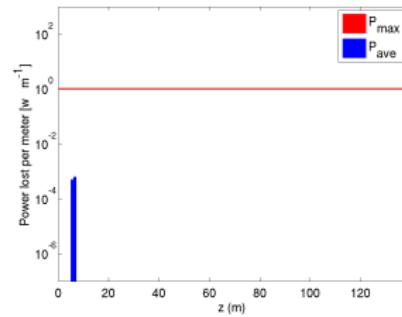


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(94) Solenoids Field $\delta F_{static} = 2.0 \%$

Figure: RMS Emittance X

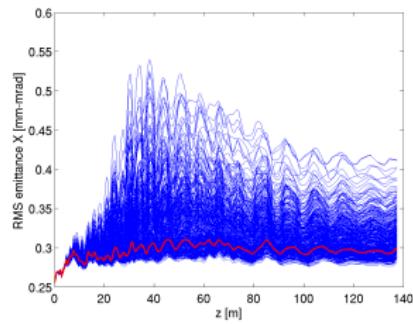


Figure: RMS Emittance Y

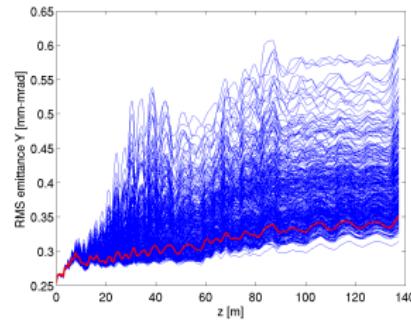


Figure: RMS Emittance Z

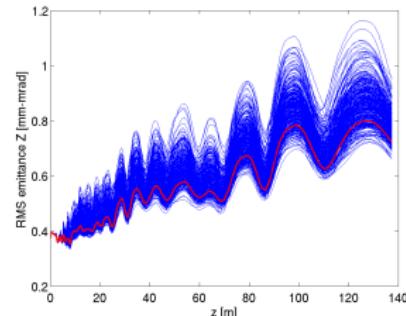
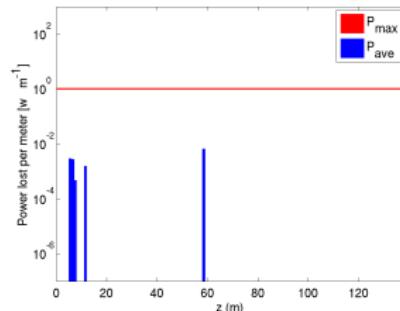


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(95) Solenoids Field $\delta F_{static} = 2.5 \%$

Figure: RMS Emittance X

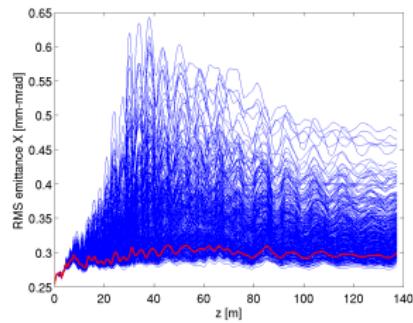


Figure: RMS Emittance Y

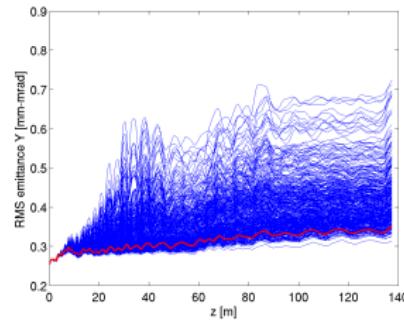


Figure: RMS Emittance Z

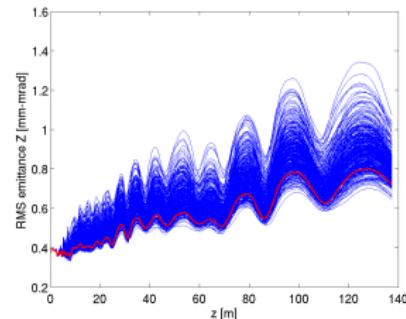
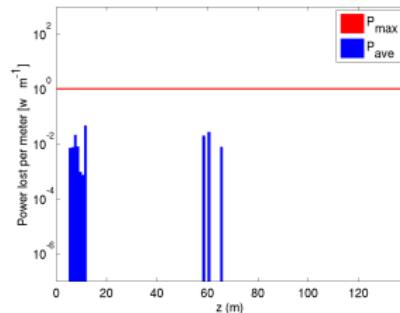


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(96) Quads $\delta_x = \delta_y = 150 \mu\text{m}$

Figure: RMS Emittance X

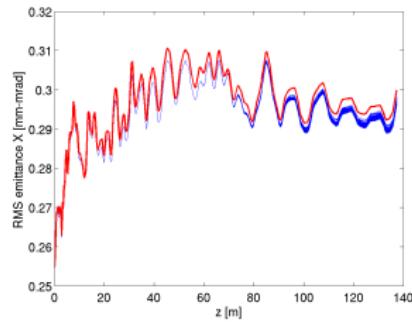


Figure: RMS Emittance Y

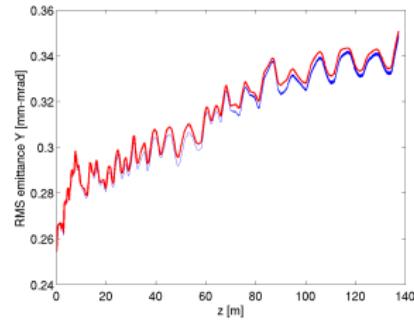


Figure: RMS Emittance Z

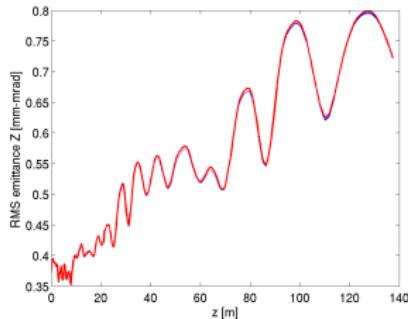
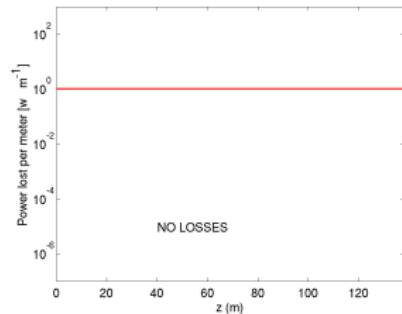


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(97) Quads $\delta_x = \delta_y = 300 \mu\text{m}$

Figure: RMS Emittance X

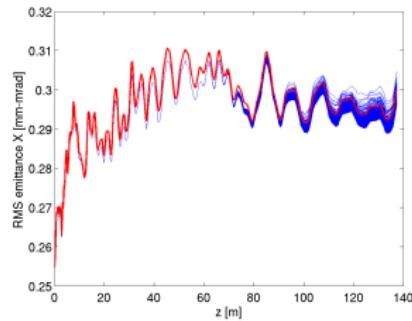


Figure: RMS Emittance Y

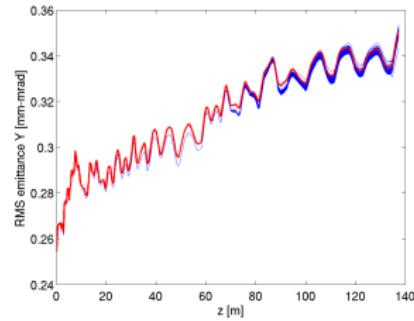


Figure: RMS Emittance Z

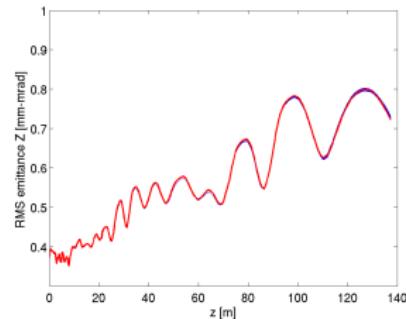
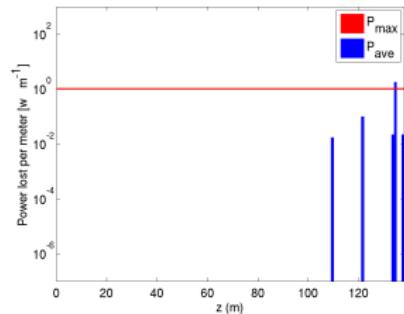


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(98) Quads $\delta_x = \delta_y = 500 \mu\text{m}$

Figure: RMS Emittance X

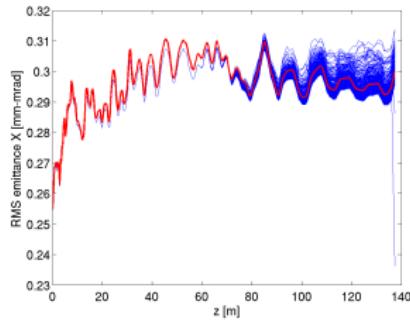


Figure: RMS Emittance Y

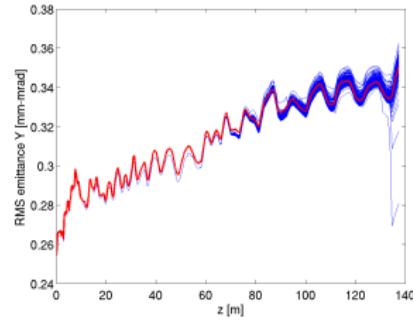


Figure: RMS Emittance Z

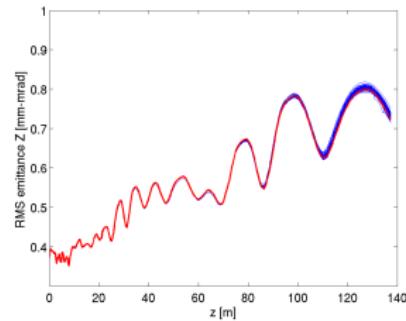
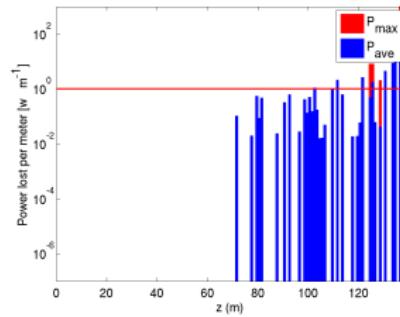


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(99) Quads $\delta_x = \delta_y = 750 \mu\text{m}$

Figure: RMS Emittance X

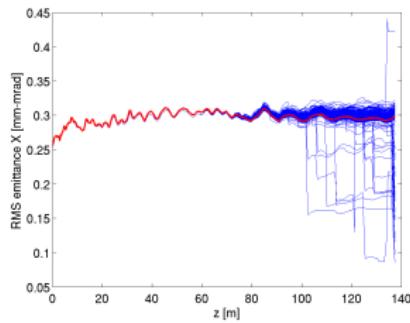


Figure: RMS Emittance Y

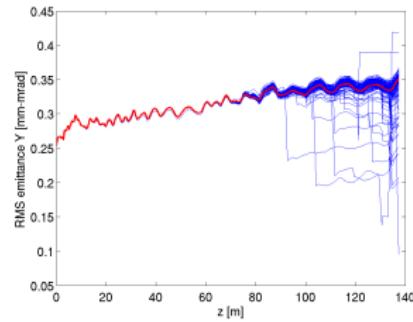


Figure: RMS Emittance Z

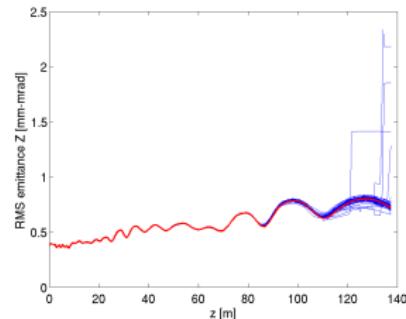
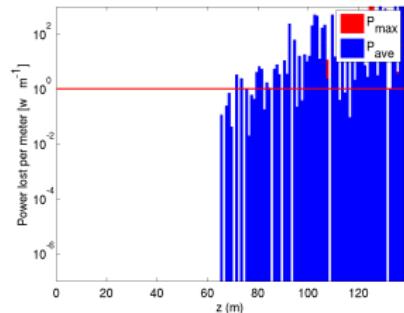


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(100) Quads $\delta_x = \delta_y = 1000 \mu\text{m}$

Figure: RMS Emittance X

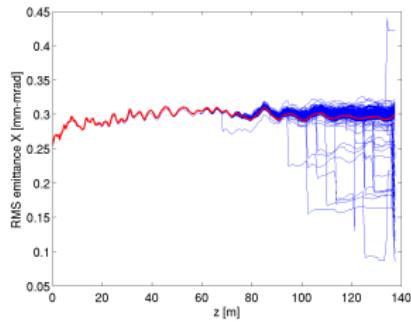


Figure: RMS Emittance Y

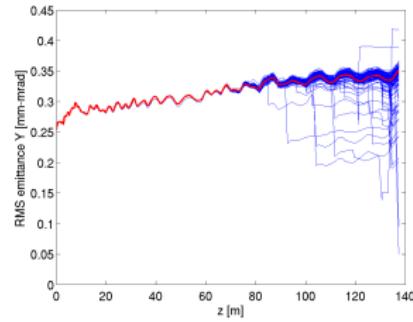


Figure: RMS Emittance Z

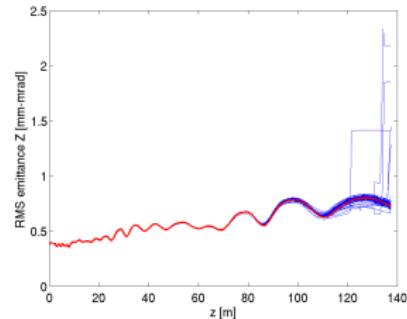
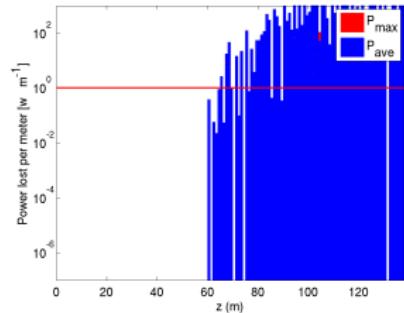


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(101) Quads $\delta_z = 150 \mu\text{m}$

Figure: RMS Emittance X

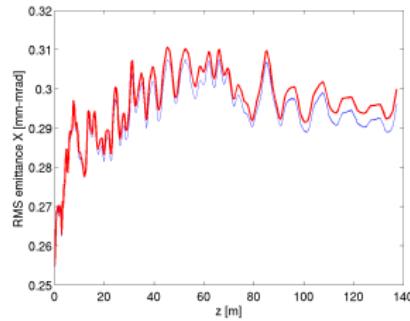


Figure: RMS Emittance Y

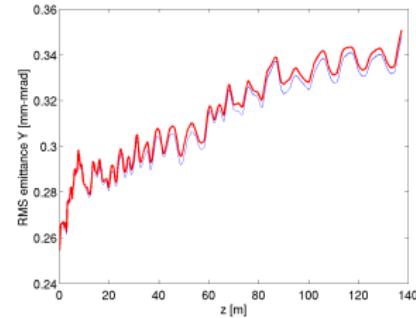


Figure: RMS Emittance Z

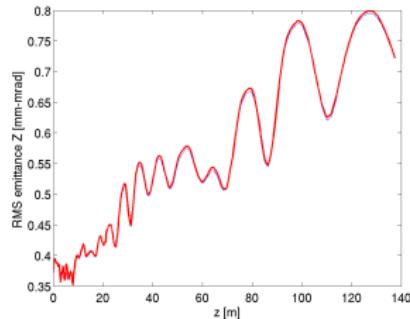
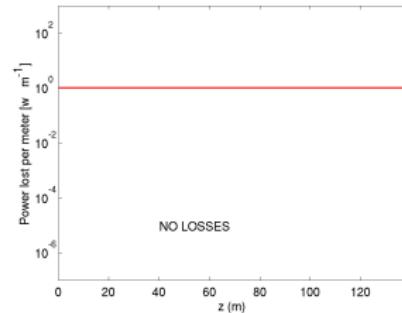


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(102) Quads $\delta_z = 300 \mu\text{m}$

Figure: RMS Emittance X

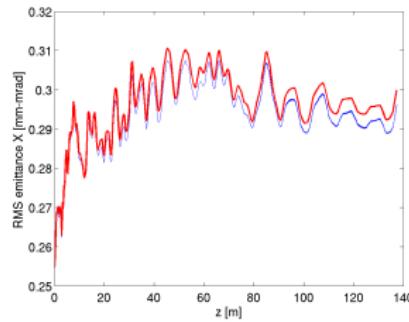


Figure: RMS Emittance Y

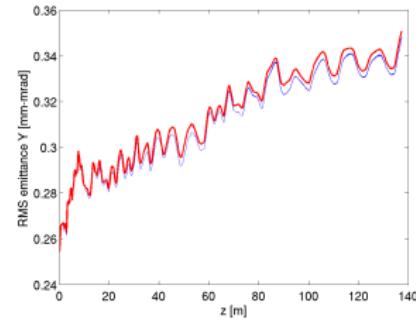


Figure: RMS Emittance Z

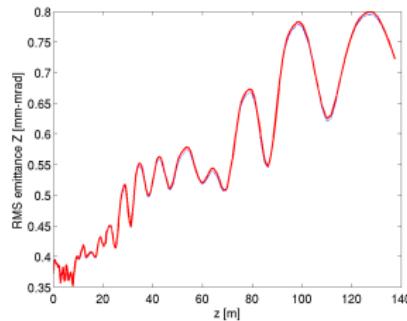
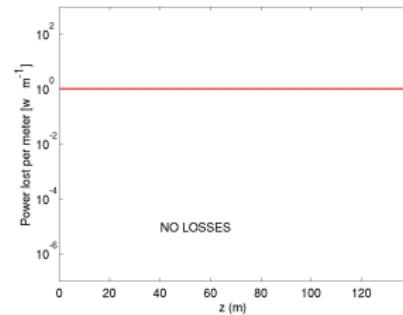


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(103) Quads $\delta_z = 500 \mu\text{m}$

Figure: RMS Emittance X

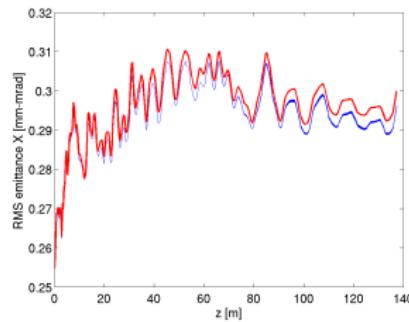


Figure: RMS Emittance Y

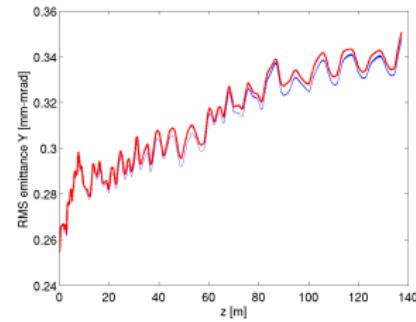


Figure: RMS Emittance Z

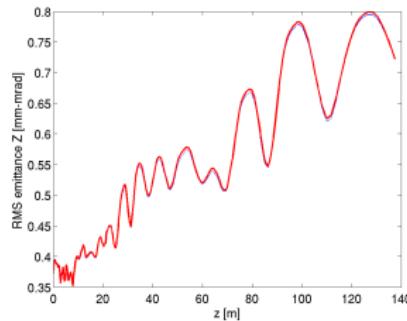
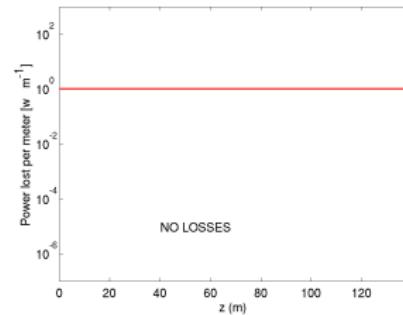


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(104) Quads $\delta_z = 750 \mu\text{m}$

Figure: RMS Emittance X

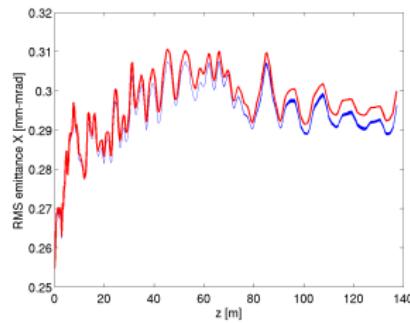


Figure: RMS Emittance Y

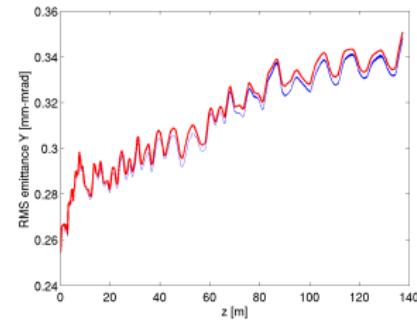


Figure: RMS Emittance Z

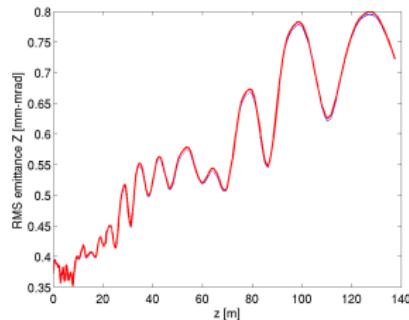
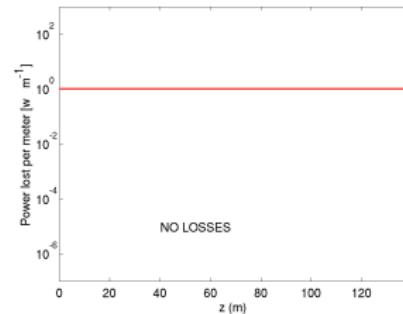


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(105) Quads $\delta_z = 1000 \mu\text{m}$

Figure: RMS Emittance X

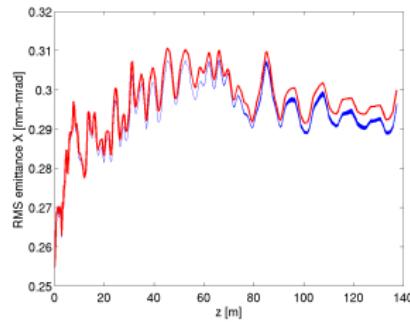


Figure: RMS Emittance Y

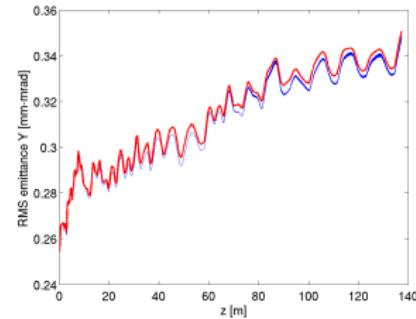


Figure: RMS Emittance Z

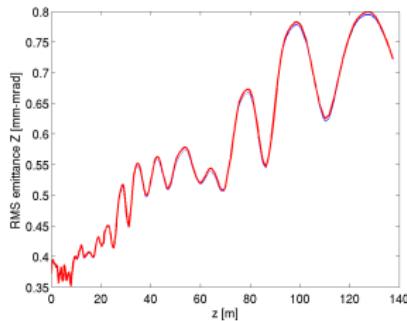
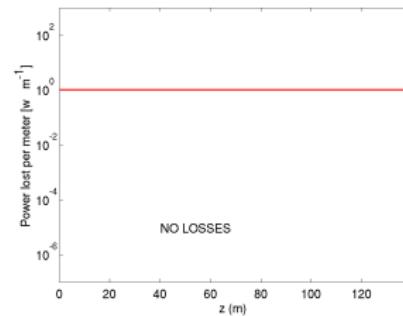


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(106) Quads $\phi_x = 1$ mrad

Figure: RMS Emittance X

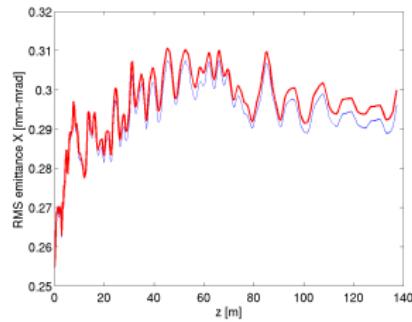


Figure: RMS Emittance Y

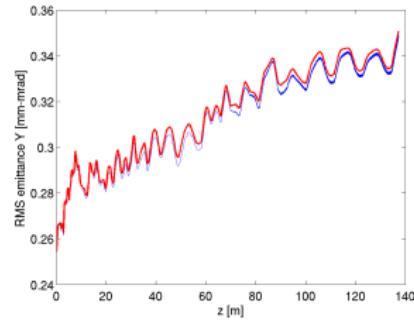


Figure: RMS Emittance Z

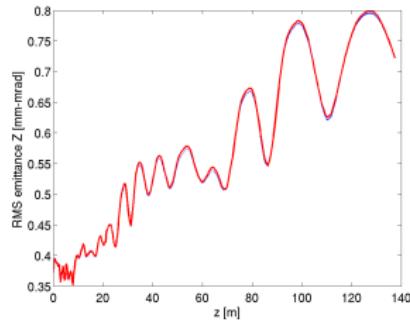
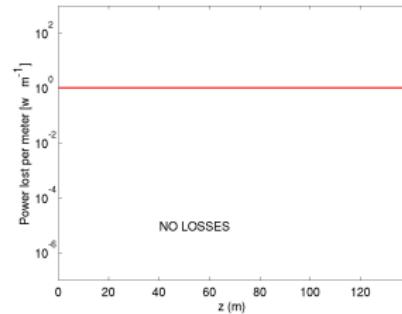


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(107) Quads $\phi_x = 2$ mrad

Figure: RMS Emittance X

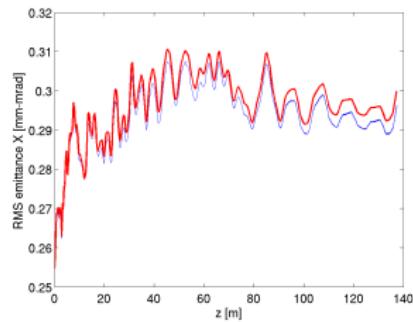


Figure: RMS Emittance Y

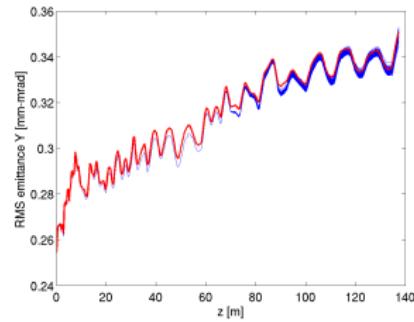


Figure: RMS Emittance z

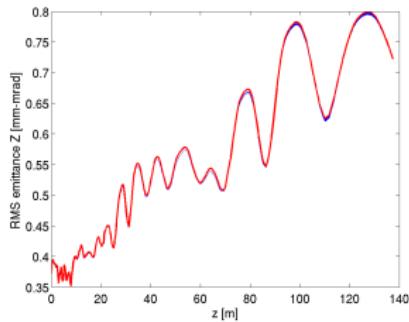
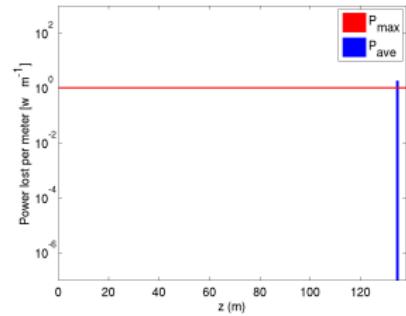


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(108) Quads $\phi_x = 5$ mrad

Figure: RMS Emittance X

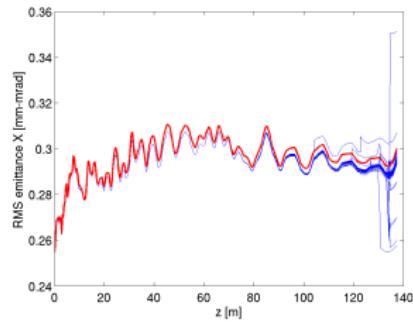


Figure: RMS Emittance Y

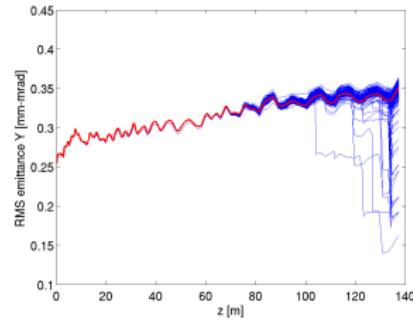


Figure: RMS Emittance Z

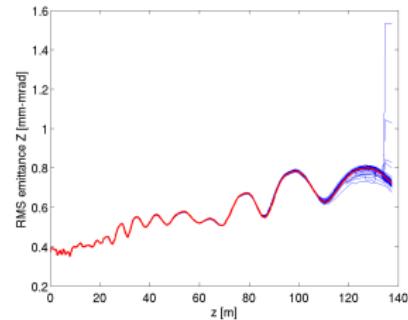
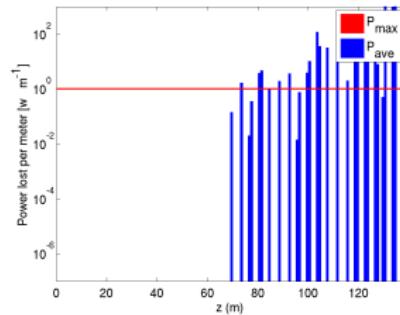


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(109) Quads $\phi_x = 7$ mrad

Figure: RMS Emittance X

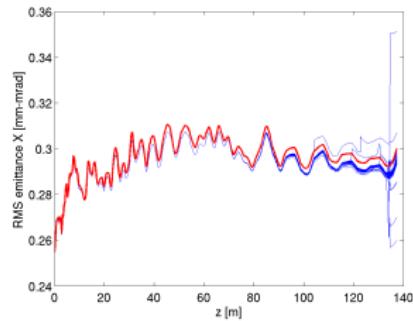


Figure: RMS Emittance Y

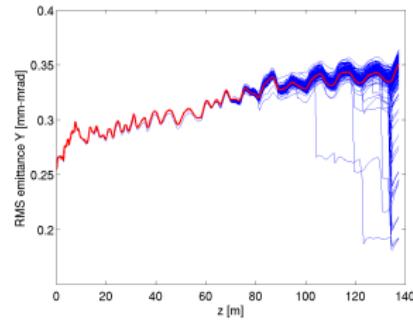


Figure: RMS Emittance Z

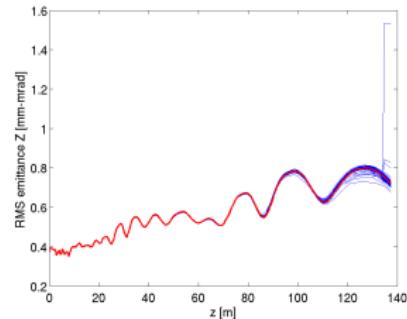
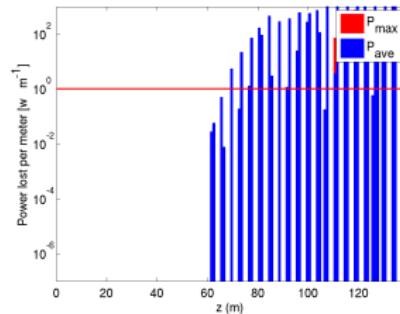


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(110) Quads $\phi_x = 10$ mrad

Figure: RMS Emittance X

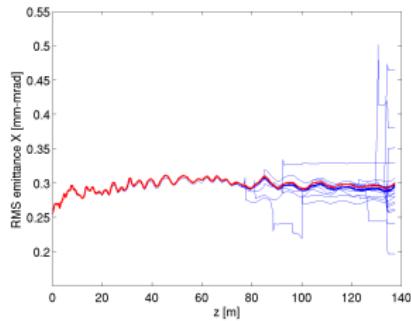


Figure: RMS Emittance Y

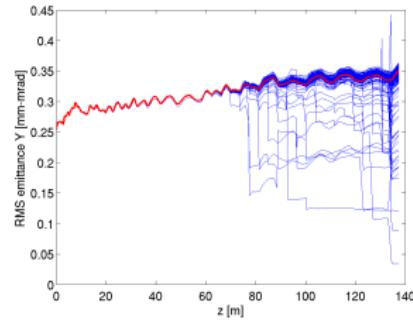


Figure: RMS Emittance Z

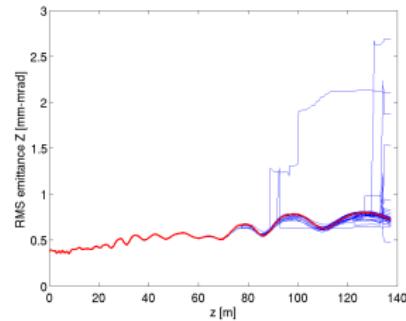
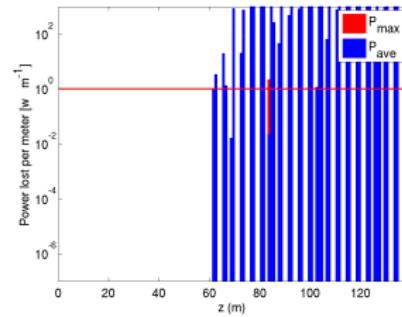


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(111) Quads $\phi_x = \phi_y = 1$ mrad

Figure: RMS Emittance X

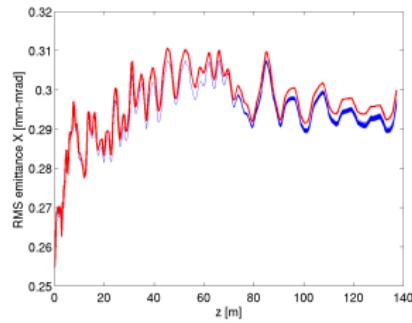


Figure: RMS Emittance Y

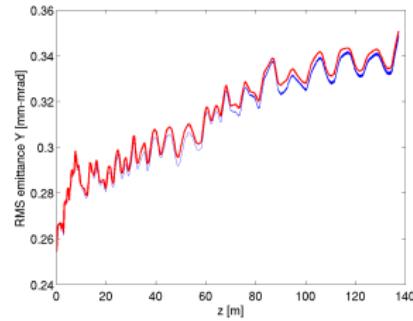


Figure: RMS Emittance Z

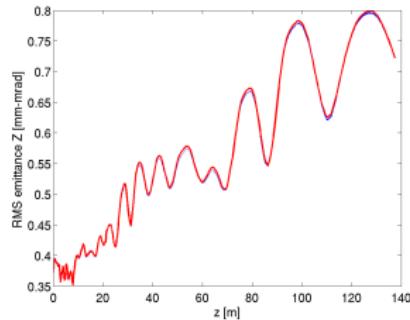
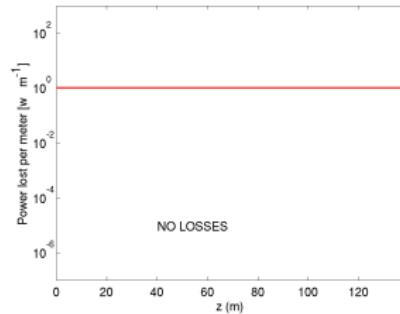


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(112) Quads $\phi_x = \phi_y = 2$ mrad

Figure: RMS Emittance X

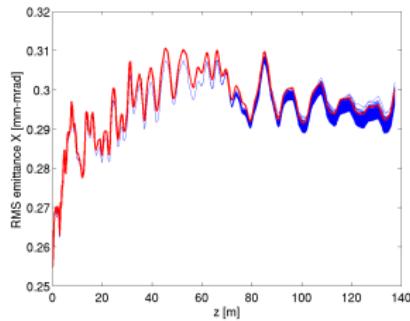


Figure: RMS Emittance Y

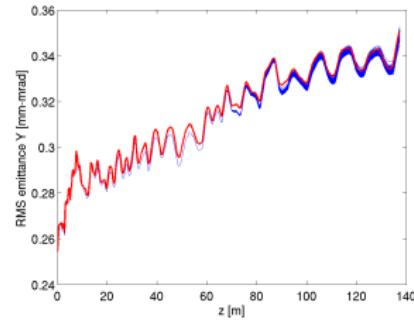


Figure: RMS Emittance Z

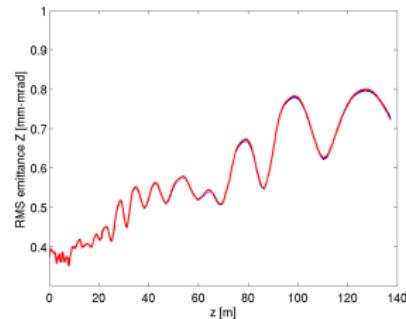
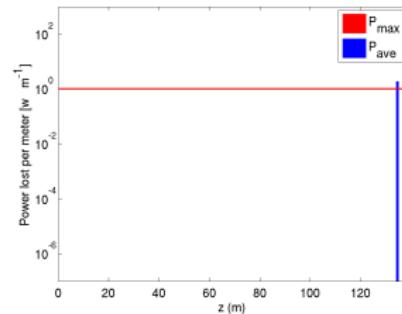


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(113) Quads $\phi_x = \phi_y = 5$ mrad

Figure: RMS Emittance X

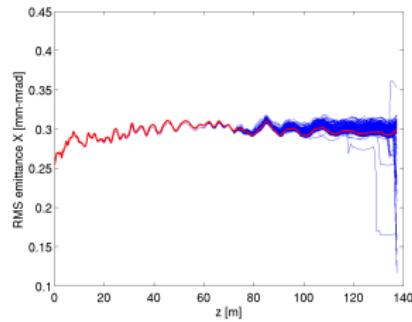


Figure: RMS Emittance Y

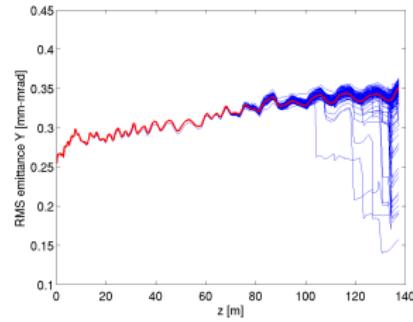


Figure: RMS Emittance Z

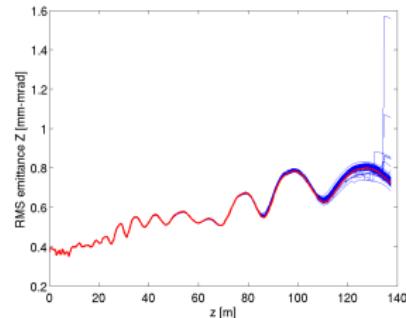
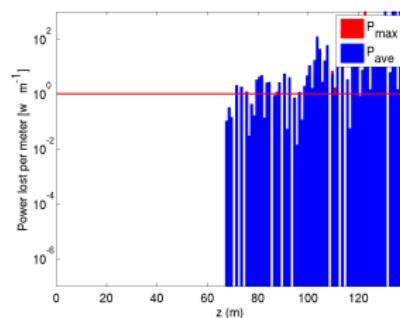


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(114) Quads $\phi_x = \phi_y = 7$ mrad

Figure: RMS Emittance X

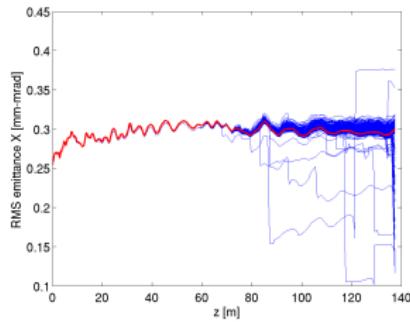


Figure: RMS Emittance Y

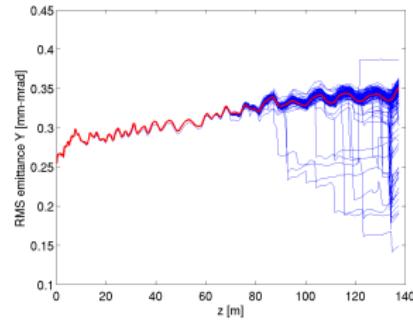


Figure: RMS Emittance Z

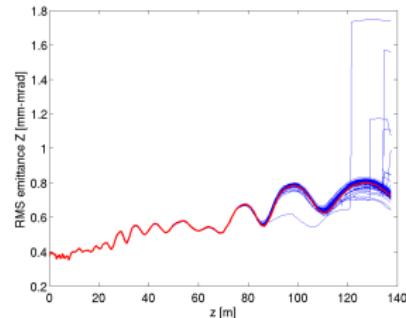
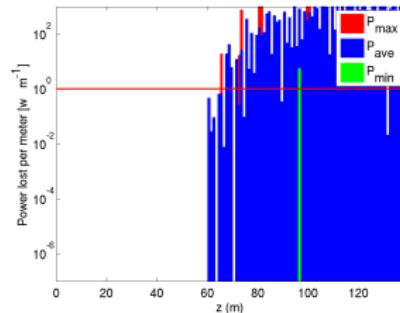


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(115) Quads $\phi_x = \phi_y = 10$ mrad

Figure: RMS Emittance X

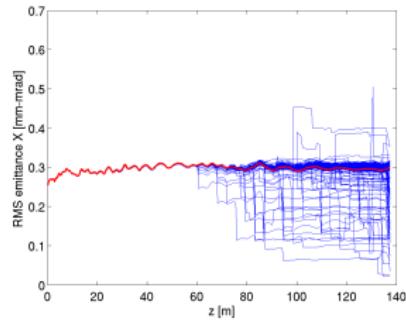


Figure: RMS Emittance Y

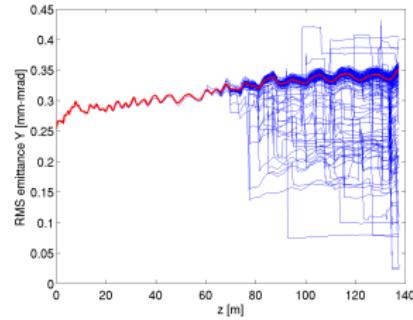


Figure: RMS Emittance Z

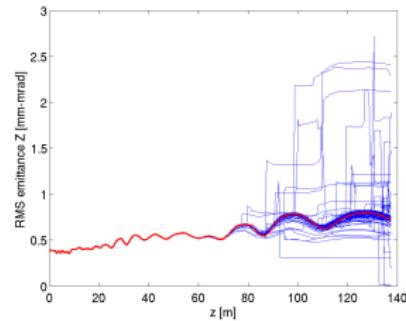
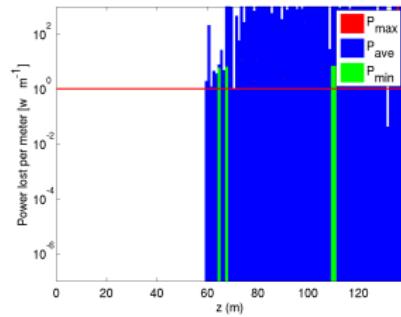


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(116) Quads Fields $\delta F_{dynamic} = 0.5 \%$

Figure: RMS Emittance X

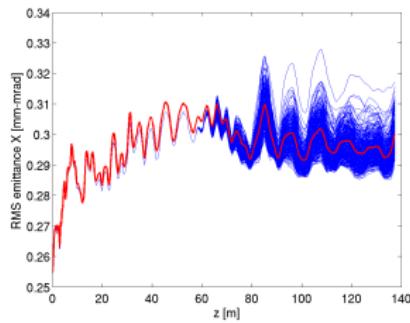


Figure: RMS Emittance Y

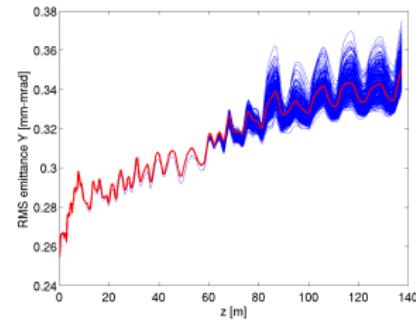


Figure: RMS Emittance Z

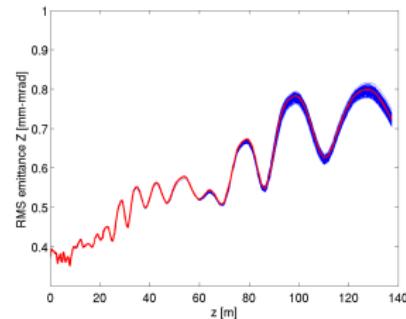
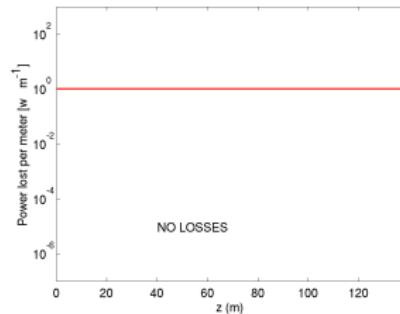


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(117) Quads Fields $\delta F_{dynamic} = 1.0 \%$

Figure: RMS Emittance X

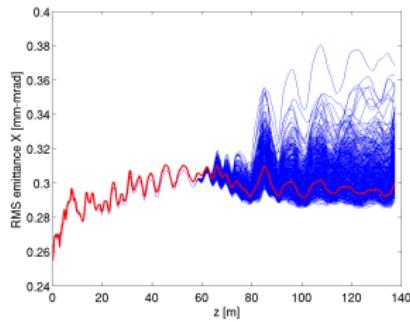


Figure: RMS Emittance Y

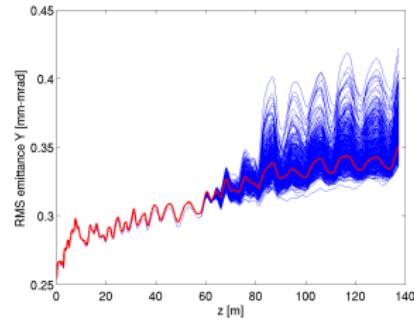


Figure: RMS Emittance Z

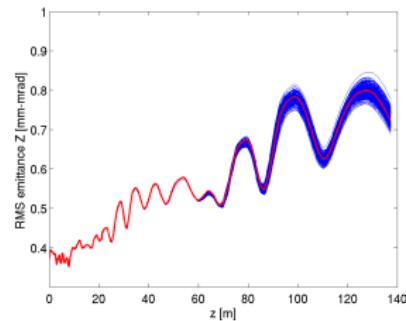
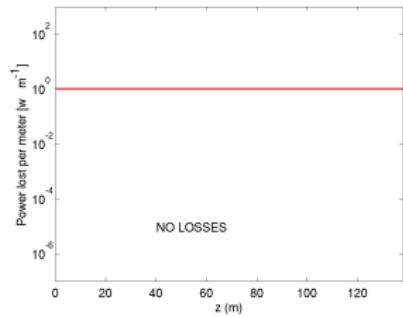


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(118) Quads Fields $\delta F_{dynamic} = 1.5 \%$

Figure: RMS Emittance X

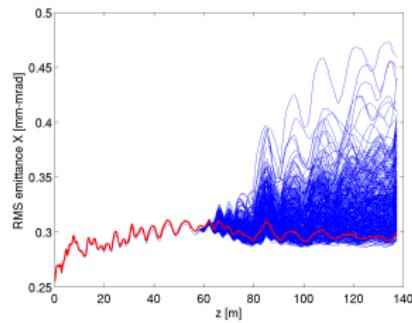


Figure: RMS Emittance Y

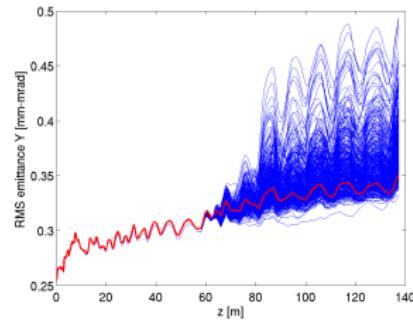


Figure: RMS Emittance Z

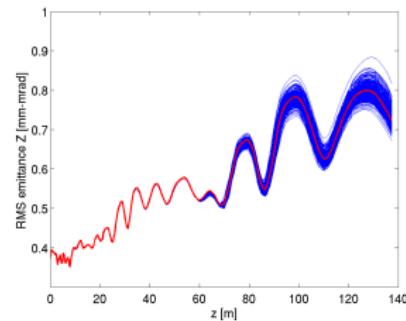
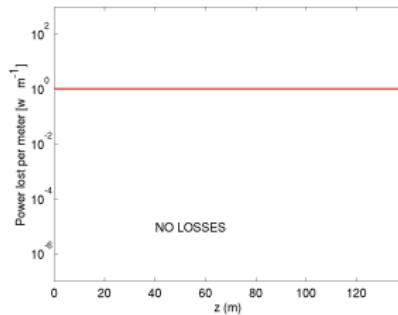


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(119) Quads Fields $\delta F_{dynamic} = 2.0 \%$

Figure: RMS Emittance X

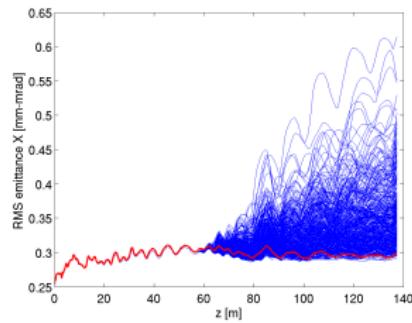


Figure: RMS Emittance Y

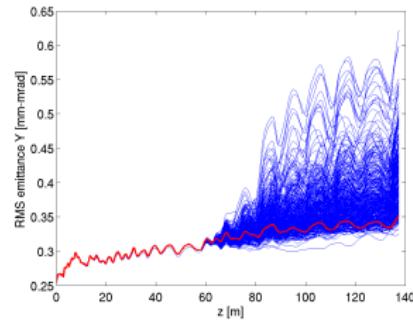


Figure: RMS Emittance Z

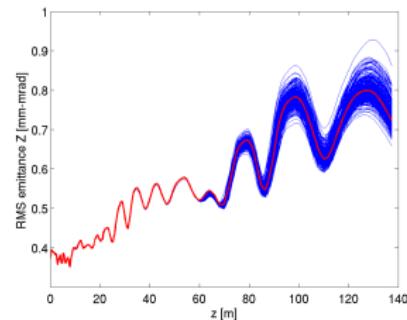
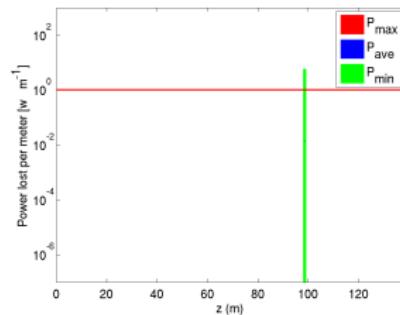


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]



(120) Quads Fields $\delta F_{dynamic} = 2.5 \%$

Figure: RMS Emittance X

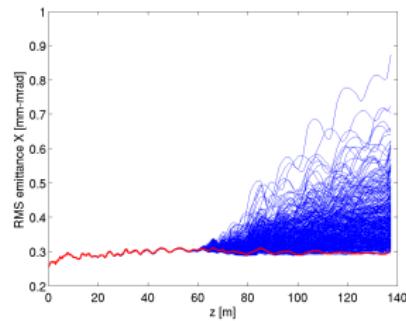


Figure: RMS Emittance Y

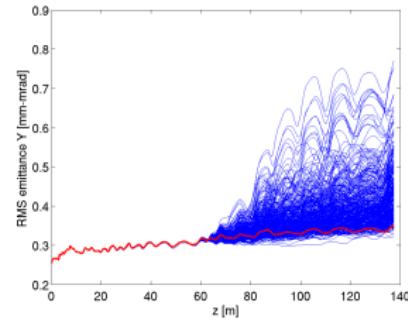


Figure: RMS Emittance Z

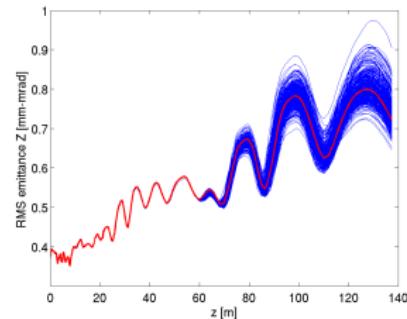


Figure: Losses [$\text{W}\cdot\text{m}^{-1}$]

